



# Dielectric<sup>®</sup> Transmission Line & Components

Trusted for Decades. Ready for Tomorrow.



# BROADCAST COMMUNICATIONS PRODUCTS & SYSTEMS SINCE 1942

Dielectric helped to pioneer the broadcast age in 1942, and continues to be the world's most trusted manufacturer and supplier of antennas and RF systems for TV and radio networks.

With more than 75 years in business, Dielectric reliably powers over-the-air operations worldwide. Dielectric is the undisputed leader for high-power North American systems, and continues to gain low-power market share in Asia, South America, and other international regions through its Powerlite series. Mostly anyone who has received TV and FM broadcasts over the air, whether at home or while traveling, has enjoyed that content courtesy of a Dielectric system.

Dielectric's manufacturing operation today focuses on five key areas of expertise:

- **HIGH-POWER TV SYSTEMS**
- **LOW-POWER TV SYSTEMS**
- **TRANSMISSION LINE AND COMPONENTS**
- **RADIO ANTENNAS AND COMPONENTS**
- **RF SYSTEMS (FILTERS AND COMBINERS)**
- **MONITORING & MAINTENANCE**

All five manufacturing areas share common traits, using only the highest quality materials and engineering to develop robust, long-lasting systems. Dielectric products are built for longevity and endurance in the most challenging outdoor conditions.

Dielectric also employs many of today's brightest RF engineering minds, blending years of expertise with a forward-looking philosophy that embraces software-defined planning and design. Dielectric's support services extend to consultation across pre-sales, installation and commissioning. Dielectric is also driving unforeseen innovation into the convergence of RF and IP technologies, beginning with its new RFHAWKEYE® monitoring system that will change the way that broadcasters monitor, manage and troubleshoot antenna and RF systems for generations to come.

Products contained in this catalog may be covered by one or more of the following patents: 6,917,264; 6,903,624; 6,887,093; 6,882,224; 6,870,443; 6,867,743; 6,816,040; 6,703,984; 6,703,911; 6,677,916; 6,650,300; 6,650,209; 6,617,940; 6,538,529; 6,373,444; 6,320,555; 5,999,145; 5,861,858; 5,455,548; 5,418,545; 5,401,173; 5,167,510; 4,988,961; 4,951,013; 4,899,165; 4,723,307; 4,654,962; 4,602,227; 7,084,822; 7,081,860; 7,061,441; 7,034,545; 7,012,574; 6,972,731; 6,972,648; 6,961,027; 6,914,579; 6,441,796; 7,102,589

Additional patents are pending.

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Dielectric has received two Emmy awards for technical innovation.





## Introduction

Dielectric is the world's largest manufacturer of Rigid Coaxial Transmission Line. Our record of reliable service and superior quality, as well as our ongoing research and development programs, have kept us the leader in our field. Dielectric manufactures rigid coaxial transmission lines in sizes ranging from 7/8" to 12". Outer conductor material is available in aluminum in certain sizes.

More TV and radio stations, utilizing rigid Coax Transmission Line, are on the air with Dielectric.

## Features

### HIGH CONDUCTIVITY COPPER

Dielectric's volume allows us to purchase entire mill runs (to our specifications) of high conductivity copper tubing, 95% ICAS/99.04% purity, providing Transmission Line of constant impedance and continuous high power capacity and low insertion loss.

### WELDED CONSTRUCTION

All of Dielectric's factory installed flanges and joints are Tungsten Inert Gas Welded to ensure structural integrity and long life.

### EXPANSION COMPENSATION

RF heating of the inner and outer conductors causes differential expansion between the inner and outer which must be compensated for. Dielectric's constant impedance expansion connector is used to provide this differential expansion. The unique design of this silver plated, watch band spring connector prevents arcing and maintains constant impedance.

### INNER CONDUCTOR SUPPORT

Dielectric uses superior low loss PTFE disc type insulators (not pin or rod type supports) for long term reliability and service. Dielectric's line also utilizes a unique magneform process for insulator support undercuts. With magneforming, undercuts are magnetically formed rather than rolled or welded, allowing the use of a continuous inner conductor with excellent mechanical and electrical characteristics.

### HEAVY WALL TUBING

Dielectric uses heavy wall tubing in most miter elbows. In critical locations requiring extraordinary support, such as the bottom elbow on vertical runs, additional reinforcing is added.

## VSWR Maximum Limit Values

| Channel Range   | Length T/L Run | 3 1/8" Diameter |          | 4 1/16" Diameter |          | 6 1/8" Diameter |          | 7 3/16" Diameter |          | 8 3/16" & 9 3/16" Dia. |          |
|-----------------|----------------|-----------------|----------|------------------|----------|-----------------|----------|------------------|----------|------------------------|----------|
|                 |                | Regular         | Special* | Regular          | Special* | Regular         | Special* | Regular          | Special* | Regular                | Special* |
| 2-6, FM & 7-13  | 0 to 1000'     | 1.05            | 1.04     | 1.05             | 1.04     | 1.05            | 1.035    | 1.05             | 1.035    | 1.05                   | 1.03     |
|                 | 1000 to 1500'  | 1.06            | 1.05     | 1.06             | 1.05     | 1.06            | 1.05     | 1.06             | 1.05     | 1.06                   | 1.05     |
| 14-30           | 0 to 800'      | 1.05            | 1.035    | 1.05             | 1.035    | 1.05            | 1.03     | 1.05             | 1.035    | 1.05                   | 1.03     |
|                 | 800 to 1500'   | 1.07            | 1.05     | 1.07             | 1.05     | 1.07            | 1.05     | 1.07             | 1.05     | 1.07                   | 1.05     |
| 31-62           | 0 to 800'      | 1.06            | 1.05     | 1.06             | 1.05     | 1.05            | 1.05     | 1.05             | 1.04     | ----                   | ----     |
|                 | 800 to 1500'   | 1.08            | 1.05     | 1.08             | 1.05     | 1.08            | 1.05     | 1.08             | 1.05     | ----                   | ----     |
| 31-52 (8-3/16") | 0 to 800'      | ----            | ----     | ----             | ----     | ----            | ----     | ----             | ----     | 1.05                   | 1.04     |
|                 | 800 to 1500'   | ----            | ----     | ----             | ----     | ----            | ----     | ----             | ----     | 1.08                   | 1.05     |
| 31-38 (9-3/16") | 0 to 800'      | ----            | ----     | ----             | ----     | ----            | ----     | ----             | ----     | 1.05                   | 1.04     |
|                 | 800 to 1500'   | ----            | ----     | ----             | ----     | ----            | ----     | ----             | ----     | 1.08                   | 1.05     |

\*Special—with application of our factory installed tuners, Dielectric has the capability of producing improved VSWRs. Contact factory for tuner applications and optimization details.

## Selection of Proper Line Section Length

Dielectric's patented digiTLine is designed to operate at any VHF, UHF or FM channel. Standard lines require selection of a proper length for a given channel to obtain a low VSWR system.

## Combining Channels

When combining channels into coaxial lines the power handling capability of the line must be evaluated (see page 6). For standard lines such as EIA, the line section length must also be evaluated. The tables shown are provided for such an evaluation.

## Prohibited Channels per Line Length (3 MHz & 1.5 MHz Guard Bands)

- = Prohibited for 3 MHz Guard Band
- = Prohibited for 1.5 MHz Guard Band

### Notes:

1. For short transmission line runs, or those feeding a VHF, the flange stack-up may be insignificant. Check with manufacturer.
2. A 1.15 VSWR at a single discrete frequency may not be detrimental to a Solid State transmitter, consider that when evaluating field data.
3. For waveguide runs, check with manufacturers.

## Recommended Line Lengths

| Channel | 20' | 19 3/4' | 19 1/2' |
|---------|-----|---------|---------|
| 2       | •   |         |         |
| 3       | •   |         |         |
| 4       |     |         |         |
| 5       | •   |         |         |
| 6       | •   |         |         |
| FM*     |     |         |         |
| 7       | •   |         |         |
| 8       | •   |         |         |
| 9       | •   |         |         |
| 10      |     |         | •       |
| 11      | •   |         |         |
| 12      | •   |         |         |
| 13      | •   |         |         |
| 14      | •   |         |         |
| 15      | •   |         |         |
| 16      |     |         | •       |
| 17      |     |         | •       |
| 18      | •   |         |         |
| 19      | •   |         |         |
| 20      |     |         | •       |
| 21      |     |         | •       |
| 22      | •   |         |         |
| 23      | •   |         |         |
| 24      |     | •       |         |
| 25      |     |         | •       |
| 26      |     |         | •       |
| 27      | •   |         |         |
| 28      | •   |         |         |
| 29      |     |         | •       |
| 30      |     |         | •       |
| 31      | •   |         |         |
| 32      | •   |         |         |
| 33      |     |         | •       |
| 34      |     |         | •       |
| 35      | •   |         |         |

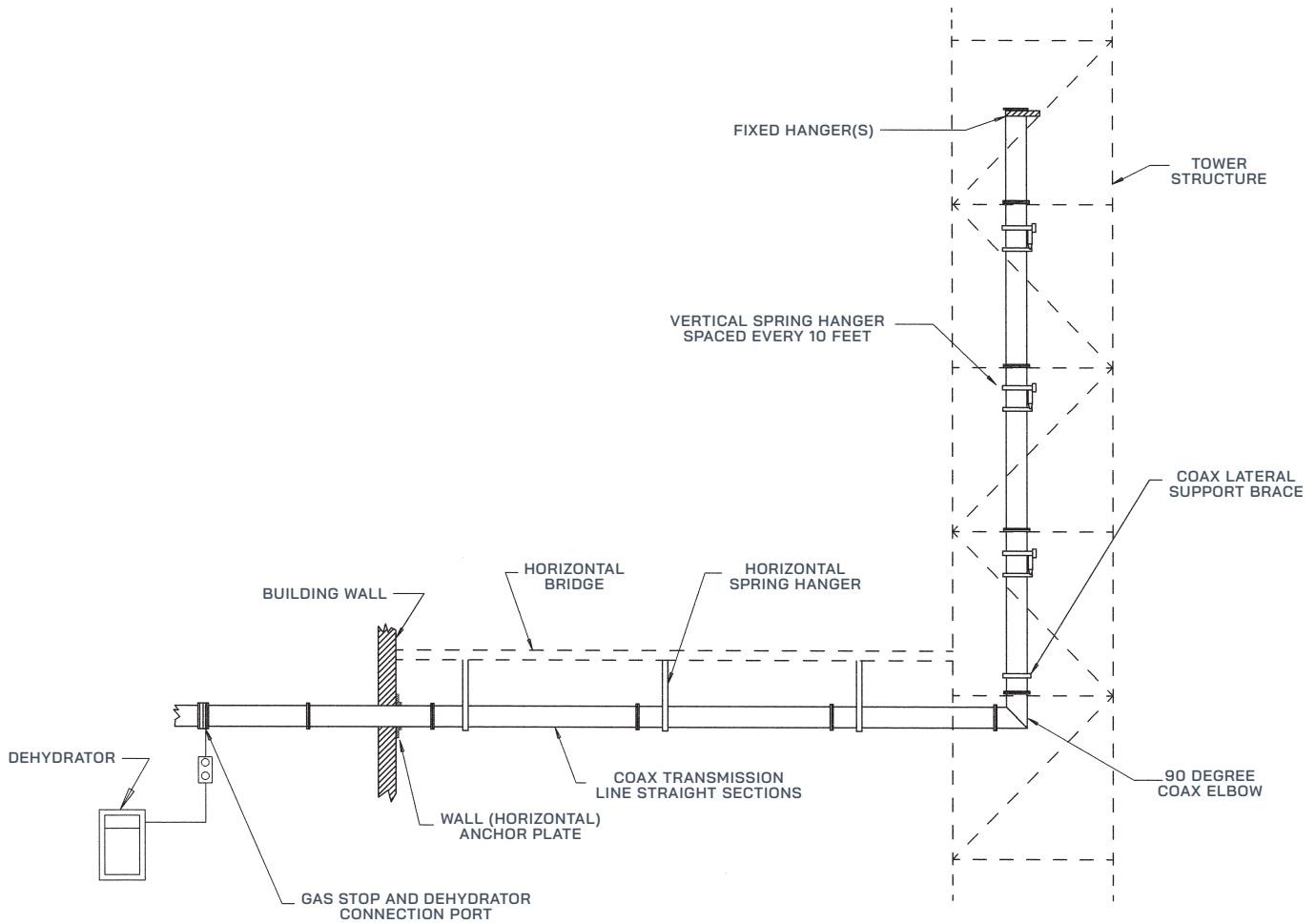
| Channel | 20' | 19 3/4' | 19 1/2' |
|---------|-----|---------|---------|
| 36      | •   |         |         |
| 37      |     |         | •       |
| 38      |     |         | •       |
| 39      | •   |         |         |
| 40      | •   |         |         |
| 41      |     |         | •       |
| 42      |     |         | •       |
| 43      | •   |         |         |
| 44      | •   |         |         |
| 45      |     | •       |         |
| 46      |     |         | •       |
| 47      | •   |         |         |
| 48      | •   |         |         |
| 49      |     | •       |         |
| 50      |     |         | •       |
| 51      | •   |         |         |
| 52      | •   |         |         |
| 53      |     | •       |         |
| 54      |     |         | •       |
| 55      | •   |         |         |
| 56      | •   |         |         |
| 57      |     | •       |         |
| 58      |     |         | •       |
| 59      | •   |         |         |
| 60      | •   |         |         |
| 61      |     | •       |         |
| 62      |     |         | •       |
| 63      | •   |         |         |
| 64      | •   |         |         |
| 65      |     | •       |         |
| 66      |     | •       |         |
| 67      | •   |         |         |
| 68      | •   |         |         |
| 69      |     | •       |         |

\*For full FM band operation 17 1/2' line sections are recommended. For single channel applications standard line lengths can be used.

## General Specifications

| T/L Size       | OUTER  |        | INNER  |        |
|----------------|--------|--------|--------|--------|
|                | OD     | ID     | OD     | ID     |
| 1 6/8"         | 1.625" | 1.527" | 0.664" | 0.588" |
| 3 1/8"         | 3.125" | 3.027" | 1.315" | 1.231" |
| 4 1/16"        | 4.062" | 3.935" | 1.711" | 1.661" |
| 6 1/8"-50 Ohm  | 6.125" | 5.981" | 2.600" | 2.520" |
| 6 1/8"-75 Ohm  | 6.125" | 5.981" | 1.711" | 1.661" |
| 7 3/16"        | 7.144" | 7.000" | 2.000" | 1.932" |
| 8 3/16"        | 8.150" | 8.000" | 2.293" | 2.226" |
| 9 3/16"-50 Ohm | 9.166" | 9.000" | 3.910" | 3.812" |
| 9 3/16"-75 Ohm | 9.166" | 9.000" | 2.580" | 2.516" |





**Minimum Horizontal Run Length vs Height**

| Vertical | 3 1/8" | 4 1/16" | 6 1/8" | 7 3/16" | 8 3/16" | 9 3/16" |
|----------|--------|---------|--------|---------|---------|---------|
| 250'     | 17'    | 18.5'   | 22.5'  | 24'     | 26'     | 28'     |
| 500'     | 23'    | 26.5'   | 32'    | 34.5'   | 37'     | 40'     |
| 1000'    | 32'    | 37'     | 46'    | 49'     | 52'     | 58'     |
| 1500'    | 40'    | 46'     | 58'    | 61.5'   | 65'     | 70'     |
| 2000'    | 46'    | 53'     | 66'    | 70.5'   | 75'     | 80'     |

## Peak Ratings

Tables of power handling and efficiency are shown on pages 29-32. Ratings are based on a temperature rise of 80°C. Where peak power is the limiting factor, it is possible to utilize a more economical size transmission line by increasing the dry air or gas pressure within the line, as long as the average power does not exceed the line rating<sup>2</sup>. The table below illustrates the ratio of increased peak power in a transmission line with changes of pressures.

### STANDARD CONDITIONS

VSWR: 1.0:1  
 Line Pressure: 0 PSIG  
 Inner Conductor Temp: 120°C  
 Ambient Temp: 40°C

### Improved Rating with Line Pressure

Average Power

| Line Pressure (PSIG) | Peak Power Rating Factor | Rating Factor 50 Ohm | Rating Factor 75 Ohm |
|----------------------|--------------------------|----------------------|----------------------|
| 0                    | 1.00                     | 1.00                 | 1.00                 |
| 5                    | 1.40                     | 1.09                 | 1.08                 |
| 10                   | 1.90                     | 1.16                 | 1.15                 |
| 15                   | 2.45                     | 1.21                 | 1.22                 |
| 20                   | 2.96                     | 1.26                 | 1.28                 |
| 25                   | 3.50                     | 1.31                 | 1.33                 |

|           | Peak Power (kW) | Peak Volts (kV) |
|-----------|-----------------|-----------------|
| 1 5/8"    | 554             | 5               |
| 3 1/8"    | 2,180           | 10              |
| 4 1/16"   | 3,685           | 13              |
| 6"-50 ohm | 8,513           | 20              |
| 6"-75 ohm | 5,550           | 20              |
| 7 3/16"   | 7,458           | 23              |
| 8 3/16"   | 9,930           | 27              |
| 9"-75 ohm | 12,568          | 30              |
| 9"-50 ohm | 19,277          | 31              |

Two factors impose limits on transmission line use: temperature and voltage (or power). Average power causes maximum temperature of the line is exceeded, the inner conductor will failure to excessive oxidation.

### AVERAGE POWER

A number of conditions affect line temperature and the maximum average power rating of line. Dielectric's transmission line ratings reflect a maximum inner conductor temperature of 120°C. Other factors such as 40°C ambient at sea level (assumes worst case summer condition for the continental US), zero wind velocity, and unity VSWR are utilized for calculation purposes.

A reduction in ambient temperature or increase in wind velocity causes the power rating to increase. Conversely, an increase in VSWR, sun load, or very high elevation can raise temperatures and lower average power handling.

### PEAK RATINGS

Peak voltages and peak power are directly related and can be used interchangeably as a measure of the breakdown limits of the transmission line. Peak voltages must not exceed the ability of the air or the insulators in the line to resist arcing. Laboratory measurements are used to determine voltage breakdown limits. Theoretical calculations can also be used, factoring in allowances for humidity, pressure, surface roughness of conductors, the relationship of inner and outer conductors, the relationship between DC Highpot and RF breakdown at high frequencies. The peak voltage limit is the same value for all frequencies in a given size line.

### NTSC

The **peak-of-sync (or peak-envelope)** power is defined by the RMS amplitude of the carrier during the horizontal and vertical sync periods.

The **peak instantaneous power** of NTSC, which occurs when the aural and visual peak voltages add in phase, is used to determine the voltage breakdown condition of all components, from the transmitter output to the antenna.

The average power of NTSC is not constant. It depends on the contents of the picture being transmitted. With total blanking, the average visual power is constant and is -2.2 dB below peak-of-sync. The average visual power of NTSC, combined with the aural power are used to calibrate the transmitter from calorimetric measurement of average power. Mathematically, **P ave = P sync (APL + A/P sync)**, where APL is the average picture level and is .6 during blanking, and A/P sync is the ratio of aural to visual peak power, typically .1 (10%) for UHF, and .2 (20%) for VHF.

### DTV

For DTV the average power is independent of the content of the image being transmitted; unlike with NTSC, it is a constant value and there is no separate aural carrier to consider. For DTV, the average power will be the significant parameter in ERP, coverage, interference and CNR (Carrier-to-Noise Ratio) calculations.

The average power alone, however, cannot be used to define the size of either the transmitter or passive components (filters, transmission line, antennas), which will be evaluated on peak power or voltage breakdown conditions.

### COMBINING CHANNELS (SEE CHART AT LEFT)

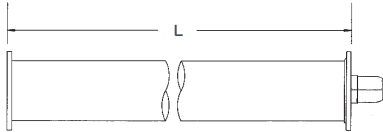
When combining channels into one transmission line, both average and peak ratings must be evaluated. In general, for carriers of equal power, the peak power rises as the square of the number of carriers.

<sup>1</sup>Peak Voltage Ratings based on a 4:1 margin of safety to theoretical.  
<sup>2</sup>Average power rating is also increased with greater line pressure.



### Straight Sections Fixed Flange

Transmission line with flanges on both ends. Includes one anchor connector, one O-ring and one hardware kit.



### Without Expansion Inner Conductor

| T/L Size | Catalog Number | Impedance in Ohms | L     | Approx Weight |
|----------|----------------|-------------------|-------|---------------|
| 3 1/8"   | 375-004        | 50                | 20'   | 56 lbs        |
|          | 375-003        | 50                | 19.5' | 51 lbs        |
| 4 1/16"  | 475-004        | 50                | 20'   | 110 lbs       |
|          | 475-003        | 50                | 19.5' | 100 lbs       |
| 6 1/8"   | 675-004        | 50                | 20'   | 145 lbs       |
|          | 675-003        | 50                | 19.5' | 135 lbs       |
| 6 1/8"   | 677-004        | 75                | 20'   | 145 lbs       |
|          | 677-003        | 75                | 19.5' | 135 lbs       |
| 7 3/16"  | 777-004        | 75                | 20'   | 180 lbs       |
|          | 777-003        | 75                | 19.5' | 168 lbs       |
| 8 3/16"  | 877-004        | 75                | 20'   | 216 lbs       |
|          | 877-003        | 75                | 19.5' | 202 lbs       |
| 9 3/16"  | 977-004        | 75                | 20'   | 260 lbs       |
|          | 977-003        | 75                | 19.5' | 248 lbs       |

### Random Lengths Fixed Flange

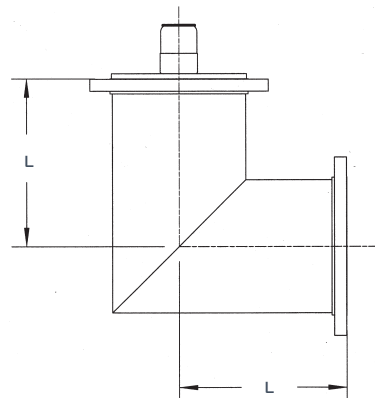
| T/L Size | Catalog Number | Approx Weight |
|----------|----------------|---------------|
| 1 5/8"   | 275-006        | 50            |
| 3 1/8"   | 375-006        | 50            |
| 4 1/16"  | 475-006        | 50            |
| 6 1/8"   | 675-006        | 50            |
| 6 1/8"   | 677-006        | 75            |
| 7 3/16"  | 775-006        | 50            |
| 8 3/16"  | 877-006        | 75            |
| 9 3/16"  | 975-006        | 50            |
| 9 3/16"  | 977-006        | 75            |

**Length:** Specified by Customer  
**Approx Weight:** Determined by Length  
 (see chart at right)

### Without Expansion Compensation

Flanged on both ends. Supplied with anchor connector, O-ring and hardware kit.

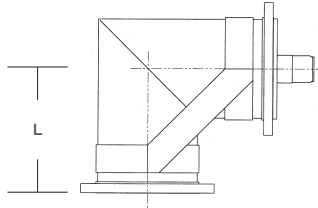
| T/L Size | Catalog Number | Impedance in Ohms | L     | Approx Weight |
|----------|----------------|-------------------|-------|---------------|
| 1 5/8"   | 275-002        | 50                | 20'   | 27 lbs        |
|          | 275-001        | 50                | 19.5' | 26 lbs        |
| 3 1/8"   | 375-002        | 50                | 20'   | 60 lbs        |
|          | 375-001        | 50                | 19.5' | 56 lbs        |
| 4 1/16"  | 475-002        | 50                | 20'   | 110 lbs       |
|          | 475-001        | 50                | 19.5' | 100 lbs       |
| 6 1/8"   | 675-002        | 50                | 20'   | 145 lbs       |
|          | 675-001        | 50                | 19.5' | 135 lbs       |
| 6 1/8"   | 677-002        | 75                | 20'   | 140 lbs       |
|          | 677-001        | 75                | 19.5' | 130 lbs       |
| 7 3/16"  | 775-002        | 75                | 20'   | 215 lbs       |
|          | 775-001        | 75                | 19.5' | 205 lbs       |
| 8 3/16"  | 877-002        | 75                | 20'   | 192 lbs       |
|          | 877-001        | 75                | 19.5' | 183 lbs       |
| 9 3/16"  | 975-002        | 50                | 20'   | 270 lbs       |
|          | 975-001        | 50                | 19.5' | 202 lbs       |
| 9 3/16"  | 977-002        | 75                | 20'   | 229 lbs       |
|          | 977-001        | 75                | 19.5' | 219 lbs       |



### 90° Mitre Elbow (Equal Leg)

| T/L Size | Catalog Number | Impedance in Ohms | Impedance in | Approx. Weight |
|----------|----------------|-------------------|--------------|----------------|
| 1 5/8"   | 275-017        | 50                | 3"           | 3 lbs          |
| 3 1/8"   | 375-017        | 50                | 6"           | 9 lbs          |
| 4 1/16"  | 475-017        | 50                | 6"           | 12 lbs         |
| 6 1/8"   | 675-017        | 50                | 9"           | 28 lbs         |
| 6 1/8"   | 677-017        | 75                | 9"           | 28 lbs         |
| 7 3/16"  | 777-017        | 75                | 9"           | 35 lbs         |
| 8 3/16"  | 877-017        | 75                | 12"          | 40 lbs         |
| 9 3/16"  | 975-017        | 50                | 12"          | 50 lbs         |
| 9 3/16"  | 977-017        | 75                | 12"          | 50 lbs         |

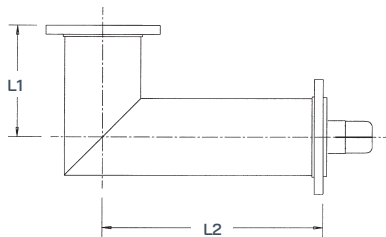
90° elbow, equal length legs.  
Includes one anchor connector,  
one O-ring and one hardware kit.  
Swivel Flanges.



**90° Mitre Elbow (Equal Leg)**

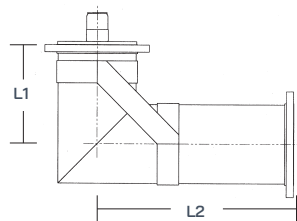
| T/L Size | Catalog Number | Impedance in Ohms | L   | Approx. Weight |
|----------|----------------|-------------------|-----|----------------|
| 3 1/8"   | 375-021        | 50                | 6"  | 10 lbs         |
| 4 1/16"  | 475-021        | 50                | 6"  | 14 lbs         |
| 6 1/8"   | 675-021        | 50                | 9"  | 29 lbs         |
| 6 1/8"   | 677-021        | 75                | 9"  | 29 lbs         |
| 7 3/16"  | 777-021        | 75                | 9"  | 37 lbs         |
| 8 3/16"  | 877-021        | 75                | 12" | 45 lbs         |
| 9 3/16"  | 975-021        | 75                | 12" | 55 lbs         |

**90° Mitre Elbows (Unequal Leg)**



| T/L Size | Catalog Number | Impedance in Ohms | L1  | L2  | Approx. Weight |
|----------|----------------|-------------------|-----|-----|----------------|
| 1 5/8"   | 275-018        | 50                | 3"  | 6"  | 4.25 lbs       |
| 3 1/8"   | 375-018        | 50                | 6"  | 9"  | 12 lbs         |
| 4 1/16"  | 475-018        | 50                | 6"  | 12" | 18 lbs         |
| 6 1/8"   | 675-018        | 50                | 9"  | 18" | 31 lbs         |
| 7 3/16"  | 777-018        | 75                | 9"  | 18" | 40 lbs         |
| 6 1/8"   | 677-018        | 75                | 9"  | 18" | 26 lbs         |
| 8 3/16"  | 877-018        | 75                | 12" | 24" | 50 lbs         |
| 9 3/16"  | 975-018        | 50                | 12" | 24" | 60 lbs         |
| 9 3/16"  | 977-018        | 75                | 12" | 24" | 60 lbs         |

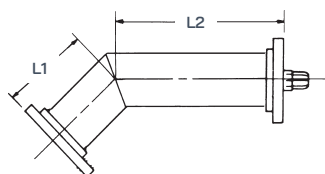
90° reinforced elbow, one long and  
one short leg. Includes one anchor  
connector, one O-ring and one  
hardware kit. Swivel flanges.



**90° Mitre Elbow (Unequal Leg) Reinforced**

| T/L Size | Catalog Number | Impedance in Ohms | L1  | L2  | Approx. Weight |
|----------|----------------|-------------------|-----|-----|----------------|
| 3 1/8"   | 375-022        | 50                | 6"  | 9"  | 13 lbs         |
| 4 1/16"  | 475-022        | 50                | 6"  | 12" | 20 lbs         |
| 6 1/8"   | 675-022        | 50                | 9"  | 18" | 32 lbs         |
| 6 1/8"   | 677-022        | 75                | 9"  | 18" | 27 lbs         |
| 7 3/16"  | 777-022        | 75                | 9"  | 18" | 45 lbs         |
| 8 3/16"  | 877-022        | 75                | 12" | 24" | 55 lbs         |
| 9 3/16"  | 977-022        | 75                | 12" | 24" | 65 lbs         |

45° elbow, one long and one short  
leg. Includes one anchor connector,  
one O-ring and one hardware kit.  
Swivel flanges.

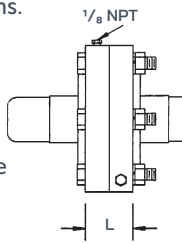


**45° Mitre Elbow (Unequal Leg)**

| T/L Size | Catalog Number | Impedance in Ohms | L1   | L2  | Approx. Weight |
|----------|----------------|-------------------|------|-----|----------------|
| 1 5/8"   | 275-020        | 50                | 2.5" | 6"  | 4.25 lbs       |
| 3 1/8"   | 375-020        | 50                | 6"   | 12" | 12 lbs         |
| 4 1/16"  | 475-020        | 50                | 6"   | 12" | 18 lbs         |
| 6 1/8"   | 675-020        | 50                | 9"   | 12" | 31 lbs         |
| 6 1/8"   | 677-020        | 75                | 9"   | 12" | 31 lbs         |
| 7 3/16"  | 777-020        | 75                | 9"   | 12" | 45 lbs         |

Gas stop for nominal pressure differential. Installs between two flanged line sections.

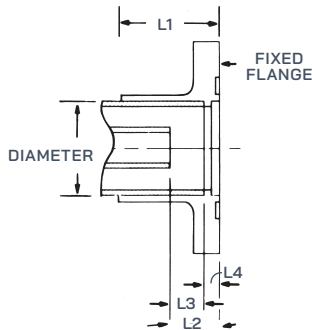
Includes inner-conductor connector, one O-ring and complete hardware (long bolts).



## Gas Stop

| T/L Size | Catalog Number | Impedance in Ohms | L     | Approx. Weight |
|----------|----------------|-------------------|-------|----------------|
| 1 5/8"   | 275-005        | 50                | 0.88" | 4 lbs          |
| 3 1/8"   | 375-005        | 50                | 1.50" | 7 lbs          |
| 4 1/16"  | 475-005        | 50                | 1.50" | 12 lbs         |
| 6 1/8"   | 675-005        | 50                | 2.00" | 16 lbs         |
| 6 1/8"   | 677-005        | 75                | 2.00" | 18 lbs         |
| 7 3/16"  | 777-005        | 75                | 2.25" | 22 lbs         |
| 8 3/16"  | 877-005        | 75                | 2.38" | 35 lbs         |
| 9 3/16"  | 975-005        | 50                | 2.00" | 40 lbs         |
| 9 3/16"  | 977-005        | 75                | 2.38" | 40 lbs         |

Flange for field installation by soft soldering. Includes solder, liquid flux, brush, garnet paper and cleaner.



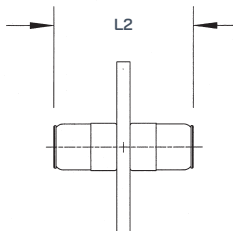
## Soft Solder Flange

This table shows cut back for 20' sections.

| T/L Size | Catalog Number | Ohms | L1    | L2           | L3           | L4    | Approx. Weight |
|----------|----------------|------|-------|--------------|--------------|-------|----------------|
| 1 5/8"   | 270-014        | 50   | 1.94" | 0.59" ± 0.03 | 0.40" ± 0.03 | .187" | 2 lbs          |
| 3 1/8"   | 370-014        | 50   | 2.13" | 0.91" ± 0.03 | 0.47" ± 0.03 | .437" | 3 lbs          |
| 4 1/16"  | 470-014        | 50   | 2.19" | 1.22" ± 0.03 | 0.85" ± 0.03 | .375" | 6 lbs          |
| 6 1/8"   | 670-014        | 50   | 3.53" | 1.28" ± 0.03 | 0.90" ± 0.03 | .375" | 7 lbs          |
| 6 1/8"   | 670-014        | 75   | 3.53" | 1.22" ± 0.03 | 0.84" ± 0.03 | .375" | 7 lbs          |
| 7 3/16"  | 770-014        | 75   | 3.50" | 1.41" ± 0.03 | 0.85" ± 0.03 | .562" | 10 lbs         |
| 8 3/16"  | 870-014        | 75   | 6.13" | 1.59" ± 0.03 | 1.22" ± 0.03 | .375" | 12 lbs         |
| 9 3/16"  | 970-014        | 50   | 6.50" | 1.78" ± 0.03 | 1.15" ± 0.03 | .626" | 14 lbs         |
| 9 3/16"  | 970-014        | 75   | 6.50" | 1.59" ± 0.03 | 0.97" ± 0.03 | .626" | 14 lbs         |

Note the cut back difference between 50 & 75 ohms and 6 1/8 & 9 3/16. The given dimensions are for cutting back the inner and outer conductor of transmission line onto the end of which a flange is to be installed.

Anchor connector (inner-conductor connector and insulator).

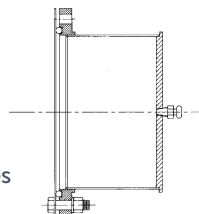


## Connector Anchor Insulator

| T/L Size | Catalog Number | Impedance in Ohms | L1     | L2       | Approx. Weight |
|----------|----------------|-------------------|--------|----------|----------------|
| 1 5/8"   | 275-011        | 50                | 1 5/8" | 3 1/8"   | 3.5 oz         |
| 3 1/8"   | 375-011        | 50                | 1 3/4" | 4 1/8"   | 13 oz          |
| 4 1/16"  | 475-011        | 50                | 2 3/8" | 5 3/8"   | 2 lbs          |
| 6 1/8"   | 675-011        | 50                | 2 1/2" | 5 1/2"   | 2 lbs          |
| 6 1/8"   | 677-011        | 75                | 2 3/8" | 5 3/8"   | 2 lbs          |
| 7 3/16"  | 777-011        | 75                | 2 3/4" | 5 1/16"  | 2 lbs          |
| 8 3/16"  | 877-011        | 75                | 3 1/8" | 6 1/16"  | 2 lbs          |
| 9 3/16"  | 975-011        | 50                | 3 1/2" | 6 31/32" | 5 lbs          |
| 9 3/16"  | 977-011        | 75                | 3 1/8" | 6 1/8"   | 2 lbs          |

End cap with gas port. Includes O-ring and hardware kit.

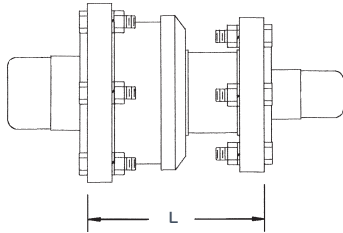
For temporary closure of transmission line to prevent entrance of moisture. Includes pipe plug.



## End Cap

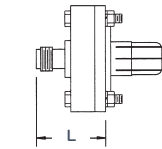
| T/L Size | Catalog Number | Approx. Weight |
|----------|----------------|----------------|
| 1 5/8"   | 270-024        | 7 oz           |
| 3 1/8"   | 370-024        | 5 lbs          |
| 4 1/16"  | 470-024        | 7 lbs          |
| 6 1/8"   | 670-024        | 10 lbs         |
| 7 3/16"  | 770-024        | 12 lbs         |
| 8 3/16"  | 870-024        | 14 lbs         |
| 9 3/16"  | 970-024        | 15 lbs         |

Reducer to smaller line constant impedance. Includes inner conductor connector, O-rings and hardware.

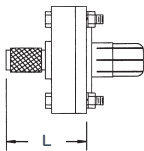


**Reducer**

| T/L Size | Smaller Size | Catalog Number | Impedance in Ohms | L      | Approx. Weight |
|----------|--------------|----------------|-------------------|--------|----------------|
| 1 5/8"   | 7/8"         | 275-060        | 50                | 1.75"  | 2 lbs          |
| 3 1/8"   | 7/8"         | 375-061        | 50                | 1.25"  | 5 lbs          |
| 3 1/8"   | 1 5/8"       | 375-060        | 50                | 0.875" | 6 lbs          |
| 4 1/16"  | 3 1/8"       | 475-060        | 50                | 4.00"  | 10 lbs         |
| 6 1/8"   | 3 1/8"       | 675-061        | 50                | 6.75"  | 14 lbs         |
| 6 1/8"   | 4 1/16"      | 675-060        | 50                | 5.00"  | 16 lbs         |
| 8 3/16"  | 7 3/16"      | 877-061        | 75                | 9.00"  | 22 lbs         |
| 8 3/16"  | 6 1/8"       | 877-060        | 75                | 9.31"  | 21 lbs         |
| 9 3/16"  | 6 1/8"       | 975-061        | 50                | 9.00"  | 25 lbs         |
| 9 3/16"  | 6 1/8"       | 977-061        | 75                | 10.00" | 25 lbs         |
| 9 3/16"  | 8 3/16"      | 977-060        | 75                | 9.00"  | 32 lbs         |



REDUCER TO TYPE "N" (FEMALE)



REDUCER TO TYPE "N" (MALE)

**Quick Step Reducer to Type "N"**

Female Type "N" Connector

| T/L Size | Catalog Number | Impedance in Ohms | L     | Approx. Weight |
|----------|----------------|-------------------|-------|----------------|
| 1 5/8"   | 275-063        | 50                | 2.19" | 2 lbs          |
| 3 1/8"   | 375-063        | 50                | 1.75" | 3 lbs          |
| 4 1/16"  | 475-063        | 50                | 1.87" | 4 lbs          |

Male Type "N" Connector

|        |         |    |       |       |
|--------|---------|----|-------|-------|
| 1 5/8" | 275-062 | 50 | 2.19" | 2 lbs |
| 3 1/8" | 375-062 | 50 | 1.75" | 3 lbs |

**Cutoff Guide for Outer Conductor**

Includes Clamp

| Outer Conductor O.D. | Catalog Number | Approx. Weight |
|----------------------|----------------|----------------|
| 1 5/8"               | 270-040        | 1 lb           |
| 3 1/8"               | 370-040        | 2 lbs          |
| 4 1/16"              | 470-040        | 3 lbs          |
| 6 1/8"               | 670-040        | 6 lbs          |
| 7 3/16"              | 770-040        | 8 lbs          |
| 8 3/16"              | 870-040        | 10 lbs         |
| 9 3/16"              | 970-040        | 11 lbs         |

**O-Ring Buna-"N"**

| T/L Size | Catalog Number |
|----------|----------------|
| 1 5/8"   | 270-010        |
| 3 1/8"   | 370-010        |
| 4 1/16"  | 470-010        |
| 6 1/8"   | 670-010        |
| 7 3/16"  | 770-010        |
| 8 3/16"  | 870-010        |
| 9 3/16"  | 970-010        |

**Cutoff Guide for Inner Conductor**

Includes Clamp

| Inner Conductor O.D. | Catalog Number | Impedance in Ohms | Approx. Weight |
|----------------------|----------------|-------------------|----------------|
| 1 5/8"               | 270-041        | 50                | 3 oz           |
| 3 1/8"               | 375-041        | 50                | 6 oz           |
| 4 1/16"              | 475-041        | 50                | 8 oz           |
| 6 1/8"               | 675-041        | 50                | 6 oz           |
| 6 1/8"               | 677-041        | 50                | 6 oz           |
| 7 3/16"              | 777-041        | 75                | 1 lb           |
| 8 3/16"              | 877-041        | 50                | 1.5 lbs        |
| 9 3/16"              | 975-041        | 50                | 6 oz           |
| 9 3/16"              | 970-041        | 50                | 1.5 lbs        |

- > **Broadband**
- > **High Efficiency**
- > **High Power Handling**

## **The Leader in Rigid Transmission Line Technology**

Before Dielectric's patented digiTLine® was introduced in 1997, rigid coaxial transmission line was manufactured in 20 ft, 19.75 ft. or 19.5 ft sections. Certain lengths could not be used at specific frequencies as a high VSWR would result. This meant a line used at Channel 22, for example, could not be used at Channel 53. Semiflex cable, while more broadband, is less efficient with lower power handling and a somewhat high overall VSWR.

### **BROADBAND DESIGN**

digiTLine® combines the best features of rigid copper coaxial line and semi-flexible cable. By eliminating the limitations on channel use, digiTLine® can be used at ANY channel. The result is the only BROADBAND rigid line with HIGH POWER HANDLING and HIGH EFFICIENCY.

### **ADVANCED CONNECTOR**

digiTLine®'s advanced patented connector combines Dielectric's time-proven watchband expansion technology, anchor insulator support, and improvements in materials and manufacturing tolerances to virtually eliminate discontinuities at the flange joint.

### **HIGH EFFICIENCY & POWER HANDLING**

digiTLine® delivers the high efficiency and power handling required for NTSC and DTV transmissions.

Transmission line efficiency is extremely important in order to deliver maximum power to the antenna with minimum loss. Such high efficiencies are only achieved with rigid copper coaxial transmission lines like digiTLine®.

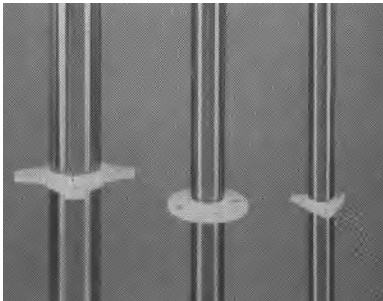


digiTLine<sup>®</sup> attenuation and power handling tables are listed on page 13. Examples to evaluate power handling (average and peak) for NTSC, HDTV or combined operation are given in the appendix.

#### **INNER CONDUCTOR SUPPORT**

digiTLine<sup>®</sup> uses Dielectric's superior low loss PTFE disc type insulators (not pin or rod type supports) for long term reliability and service. digiTLine<sup>®</sup> also uses Dielectric's unique magniform process for insulator support undercuts. With magniforming, undercuts are magnetically formed rather than rolled or welded, allowing the use of a continuous inner conductor with excellent mechanical and electrical results.

digiTLine<sup>®</sup> is also available as EHT (Enhanced Heat Transfer) line—refer to pages 14-15.



#### **AVAILABLE SIZES**

digiTLine<sup>®</sup> is available in 3 1/8", 4 1/16", and 6 1/8" (50 and 75 ohm); and 7 3/16" (75 ohm) sizes. digiTLine<sup>®</sup> is also available in 8 3/16" to channel 52, and 9 3/16" to channel 38.

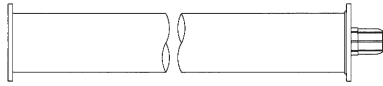
#### **INSTALLATION & MAINTENANCE**

digiTLine<sup>®</sup> is installed and maintained like standard rigid line.

#### **OTHER STANDARD FEATURES**

Many well known Dielectric features (such as high conductivity copper, heavy wall reinforced elbows and heliarc welded EIA flanges) are standard.

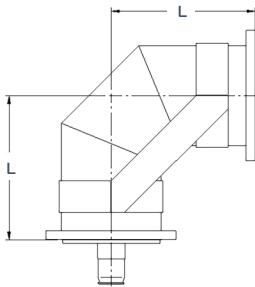
Transmission line with flanges on both ends. Includes expansion connector, O-ring, and hardware kit.



### Straight Sections—Fixed Flange With DigitLine® Expansion Connector

| T/L Size | Catalog Number | Impedance in Ohms | Approx. Weight |
|----------|----------------|-------------------|----------------|
| 3 1/8"   | DL 35-004      | 50                | 56 lbs         |
| 4 1/16"  | DL 45-004      | 50                | 110 lbs        |
| 6 1/8"   | DL 65-004      | 50                | 145 lbs        |
| 6 1/8"   | DL 67-004      | 75                | 145 lbs        |
| 7 3/16"  | DL 77-004      | 75                | 180 lbs        |
| 8 3/16"  | DL 87-004      | 75                | 216 lbs        |
| 9 3/16"  | DL 97-004      | 75                | 200 lbs        |

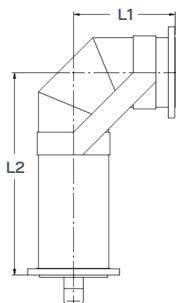
90° reinforced elbow, equal leg. Includes one anchor connector, one O-ring and one hardware kit. Swivel flanges.



### 90° Elbow (Equal) Reinforced

| T/L Size | Catalog Number | Impedance in Ohms | L   | Approx. Weight |
|----------|----------------|-------------------|-----|----------------|
| 3 1/8"   | DL 35-021      | 50                | 6"  | 13 lbs         |
| 4 1/16"  | DL 45-021      | 50                | 7"  | 20 lbs         |
| 6 1/8"   | DL 65-021      | 50                | 9"  | 32 lbs         |
| 6 1/8"   | DL 67-021      | 75                | 9"  | 27 lbs         |
| 7 3/16"  | DL 77-021      | 75                | 9"  | 35 lbs         |
| 8 3/16"  | DL 87-021      | 75                | 12" | 55 lbs         |
| 9 3/16"  | DL 97-021      | 75                | 12" | 75 lbs         |

90° reinforced elbow, unequal leg. Includes one anchor connector, one O-ring and one hardware kit. Swivel flanges.



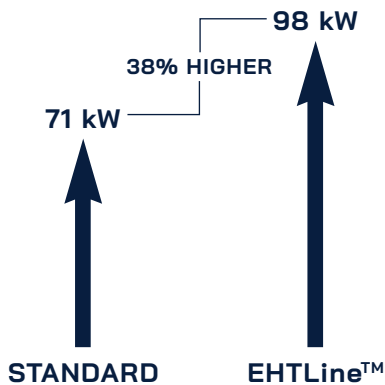
### 90° Elbow (Unequal) Reinforced

| T/L Size | Catalog Number | Impedance in Ohms | L1  | L2  | Approx. Weight |
|----------|----------------|-------------------|-----|-----|----------------|
| 3 1/8"   | DL 37-022      | 50                | 6"  | 9"  | 10 lbs         |
| 4 1/16"  | DL 45-022      | 50                | 7"  | 14" | 35 lbs         |
| 6 1/8"   | DL 65-022      | 50                | 9"  | 18" | 40 lbs         |
| 6 1/8"   | DL 67-022      | 75                | 9"  | 18" | 40 lbs         |
| 7 3/16"  | DL 77-022      | 75                | 9"  | 18" | 45 lbs         |
| 8 3/16"  | DL 87-022      | 75                | 12" | 24" | 55 lbs         |
| 9 3/16"  | DL 97-022      | 75                | 12" | 24" | 75 lbs         |

## State of the art in coaxial transmission lines!

A revolutionary design and unique manufacturing process allow the inner conductor of our new EHTLine® to run cooler than standard line at the same input power. The average power ratings of this new line are up to 45% higher than standard coaxial line. This allows the use of a smaller EHTLine®, lowering the windload on the tower. EHTLine® is available as EIA or Dielectric broadband digiTLine®. Refer to EIA and digiTLine® sections for specifications not listed here.

### 6 1/8" - 50 OHM POWER HANDLING @ CH38\*



\*Conditions: Loss at 0 kw, power at 15 PSIG, 40° C ambient, 120° C inner.  
For power ratings @ 0 PSIG multiply by 0.885 for 50 ohm and 0.875 for 75 ohm.

- › Enhanced Power Handling
- › Lower Tower Windloading
- › Proven Connector & Inner Support Designs
- › Available in All Line Sizes & Types

### EHT Power Handling

#### 4 1/16" - 50 OHM

| Channel | Frequency (MHz) | *Loss (dB/100 ft) | *Avg. Power (kw) |
|---------|-----------------|-------------------|------------------|
| 2       | 57              | 0.050             | 166              |
| 3       | 63              | 0.052             | 157              |
| 4       | 69              | 0.055             | 150              |
| 5       | 79              | 0.059             | 140              |
| 6       | 85              | 0.061             | 135              |
| FM      | 88              | 0.071             | 132              |
| FM      | 108             | 0.079             | 119              |
| 7       | 177             | 0.089             | 92               |
| 8       | 183             | 0.090             | 90               |
| 9       | 189             | 0.092             | 89               |
| 10      | 195             | 0.093             | 87               |
| 11      | 201             | 0.094             | 86               |
| 12      | 207             | 0.096             | 84               |
| 13      | 213             | 0.097             | 83               |
| 14      | 473             | 0.146             | 54               |
| 16      | 485             | 0.148             | 54               |
| 18      | 497             | 0.150             | 53               |
| 20      | 509             | 0.152             | 52               |
| 22      | 521             | 0.154             | 52               |
| 24      | 533             | 0.155             | 51               |
| 26      | 545             | 0.157             | 50               |
| 28      | 557             | 0.159             | 50               |
| 30      | 569             | 0.161             | 49               |
| 32      | 581             | 0.162             | 49               |
| 34      | 593             | 0.164             | 48               |
| 36      | 605             | 0.166             | 48               |
| 38      | 617             | 0.167             | 47               |
| 40      | 629             | 0.169             | 47               |
| 42      | 641             | 0.169             | 47               |
| 44      | 653             | 0.172             | 46               |
| 46      | 665             | 0.174             | 45               |
| 48      | 677             | 0.176             | 45               |
| 50      | 689             | 0.177             | 44               |
| 52      | 701             | 0.179             | 44               |
| 54      | 713             | 0.180             | 44               |
| 56      | 725             | 0.182             | 43               |
| 58      | 737             | 0.183             | 43               |
| 60      | 749             | 0.185             | 42               |
| 62      | 761             | 0.186             | 42               |
| 64      | 773             | 0.188             | 42               |
| 66      | 785             | 0.189             | 41               |
| 68      | 797             | 0.191             | 41               |
| 69      | 803             | 0.191             | 41               |

#### 6 1/8" - 50 OHM

| Channel | Frequency (MHz) | *Loss (dB/100 ft) | *Avg. Power (kw) |
|---------|-----------------|-------------------|------------------|
| 2       | 57              | 0.039             | 343              |
| 3       | 63              | 0.041             | 327              |
| 4       | 69              | 0.043             | 313              |
| 5       | 79              | 0.046             | 293              |
| 6       | 85              | 0.048             | 282              |
| FM      | 88              | 0.049             | 276              |
| FM      | 108             | 0.052             | 249              |
| 7       | 177             | 0.069             | 194              |
| 8       | 183             | 0.070             | 190              |
| 9       | 189             | 0.071             | 187              |
| 10      | 195             | 0.073             | 184              |
| 11      | 201             | 0.074             | 181              |
| 12      | 207             | 0.075             | 178              |
| 13      | 213             | 0.076             | 175              |
| 14      | 473             | 0.113             | 113              |
| 16      | 485             | 0.115             | 112              |
| 18      | 497             | 0.116             | 110              |
| 20      | 509             | 0.117             | 109              |
| 22      | 521             | 0.119             | 108              |
| 24      | 533             | 0.120             | 106              |
| 26      | 545             | 0.121             | 105              |
| 28      | 557             | 0.123             | 104              |
| 30      | 569             | 0.124             | 102              |
| 32      | 581             | 0.125             | 101              |
| 34      | 593             | 0.127             | 100              |
| 36      | 605             | 0.128             | 99               |
| 38      | 617             | 0.129             | 98               |
| 40      | 629             | 0.130             | 97               |
| 42      | 641             | 0.132             | 96               |
| 44      | 653             | 0.133             | 95               |
| 46      | 665             | 0.134             | 94               |
| 48      | 677             | 0.135             | 93               |
| 50      | 689             | 0.136             | 92               |
| 52      | 701             | 0.138             | 91               |
| 54      | 713             | 0.139             | 90               |
| 56      | 725             | 0.140             | 89               |
| 58      | 737             | 0.141             | 89               |
| 60      | 749             | 0.142             | 88               |
| 62      | 761             | 0.143             | 87               |
| 64      | 773             | 0.145             | 86               |
| 66      | 785             | 0.146             | 85               |
| 68      | 797             | 0.147             | 85               |
| 69      | 803             | 0.147             | 84               |



## EHT Power Handling

### 6 1/8" - 75 OHM

| Channel | Frequency (MHz) | *Loss (dB/100 ft) | *Avg. Power (kw) |
|---------|-----------------|-------------------|------------------|
| 2       | 57              | 0.034             | 300              |
| 3       | 63              | 0.035             | 286              |
| 4       | 69              | 0.037             | 274              |
| 5       | 79              | 0.040             | 256              |
| 6       | 85              | 0.042             | 247              |
| FM      | 88              | 0.043             | 242              |
| FM      | 108             | 0.048             | 218              |
| 7       | 177             | 0.061             | 169              |
| 8       | 183             | 0.062             | 166              |
| 9       | 189             | 0.063             | 163              |
| 10      | 195             | 0.064             | 160              |
| 11      | 201             | 0.065             | 158              |
| 12      | 207             | 0.066             | 155              |
| 13      | 213             | 0.067             | 153              |
| 14      | 473             | 0.105             | 99               |
| 16      | 485             | 0.107             | 97               |
| 18      | 497             | 0.108             | 96               |
| 20      | 509             | 0.109             | 95               |
| 22      | 521             | 0.111             | 94               |
| 24      | 533             | 0.113             | 92               |
| 26      | 545             | 0.114             | 91               |
| 28      | 557             | 0.115             | 90               |
| 30      | 569             | 0.117             | 89               |
| 32      | 581             | 0.118             | 88               |
| 34      | 593             | 0.119             | 87               |
| 36      | 605             | 0.120             | 86               |
| 38      | 617             | 0.121             | 85               |
| 40      | 629             | 0.123             | 84               |
| 42      | 641             | 0.124             | 83               |
| 44      | 653             | 0.125             | 82               |
| 46      | 665             | 0.126             | 82               |
| 48      | 677             | 0.128             | 81               |
| 50      | 689             | 0.130             | 80               |
| 52      | 701             | 0.131             | 79               |
| 54      | 713             | 0.132             | 78               |
| 56      | 725             | 0.133             | 78               |
| 58      | 737             | 0.134             | 77               |
| 60      | 749             | 0.136             | 76               |
| 62      | 761             | 0.137             | 76               |
| 64      | 773             | 0.138             | 75               |
| 66      | 785             | 0.139             | 74               |
| 68      | 797             | 0.141             | 74               |
| 69      | 803             | 0.141             | 73               |

### 7 3/16" - 75 OHM

| Channel | Frequency (MHz) | *Loss (dB/100 ft) | *Avg. Power (kw) |
|---------|-----------------|-------------------|------------------|
| 2       | 57              | 0.029             | 400              |
| 3       | 63              | 0.031             | 380              |
| 4       | 69              | 0.032             | 362              |
| 5       | 79              | 0.034             | 337              |
| 6       | 85              | 0.036             | 325              |
| FM      | 88              | 0.037             | 319              |
| FM      | 108             | 0.041             | 287              |
| 7       | 177             | 0.053             | 221              |
| 8       | 183             | 0.054             | 217              |
| 9       | 189             | 0.055             | 213              |
| 10      | 195             | 0.056             | 210              |
| 11      | 201             | 0.057             | 207              |
| 12      | 207             | 0.058             | 203              |
| 13      | 213             | 0.058             | 200              |
| 14      | 473             | 0.090             | 130              |
| 16      | 485             | 0.092             | 129              |
| 18      | 497             | 0.093             | 127              |
| 20      | 509             | 0.094             | 125              |
| 22      | 521             | 0.095             | 124              |
| 24      | 533             | 0.096             | 122              |
| 26      | 545             | 0.098             | 121              |
| 28      | 557             | 0.099             | 119              |
| 30      | 569             | 0.100             | 118              |
| 32      | 581             | 0.101             | 116              |
| 34      | 593             | 0.102             | 115              |
| 36      | 605             | 0.104             | 114              |
| 38      | 617             | 0.105             | 113              |
| 40      | 629             | 0.106             | 111              |
| 42      | 641             | 0.107             | 110              |
| 44      | 653             | 0.108             | 109              |
| 46      | 665             | 0.109             | 108              |
| 48      | 677             | 0.110             | 107              |
| 50      | 689             | 0.111             | 106              |
| 52      | 701             | 0.113             | 105              |
| 54      | 713             | 0.114             | 104              |
| 56      | 725             | 0.115             | 103              |
| 58      | 737             | 0.116             | 102              |
| 60      | 749             | 0.117             | 101              |
| 62      | 761             | 0.118             | 100              |
| 64      | 773             | 0.119             | 99               |
| 66      | 785             | 0.120             | 98               |
| 68      | 797             | 0.121             | 97               |
| 69      | 803             | 0.122             | 97               |

### 8 3/16" - 75 OHM

| Channel | Frequency (MHz) | *Loss (dB/100 ft) | *Avg. Power (kw) |
|---------|-----------------|-------------------|------------------|
| 2       | 57              | 0.025             | 511              |
| 3       | 63              | 0.027             | 485              |
| 4       | 69              | 0.028             | 462              |
| 5       | 79              | 0.030             | 431              |
| 6       | 85              | 0.031             | 415              |
| FM      | 88              | 0.032             | 407              |
| FM      | 108             | 0.036             | 366              |
| 7       | 177             | 0.046             | 282              |
| 8       | 183             | 0.047             | 277              |
| 9       | 189             | 0.048             | 273              |
| 10      | 195             | 0.049             | 268              |
| 11      | 201             | 0.050             | 264              |
| 12      | 207             | 0.050             | 260              |
| 13      | 213             | 0.051             | 256              |
| 14      | 473             | 0.079             | 167              |
| 16      | 485             | 0.080             | 164              |
| 18      | 497             | 0.081             | 162              |
| 20      | 509             | 0.082             | 160              |
| 22      | 521             | 0.083             | 158              |
| 24      | 533             | 0.084             | 156              |
| 26      | 545             | 0.086             | 154              |
| 28      | 557             | 0.086             | 152              |
| 30      | 569             | 0.087             | 150              |
| 32      | 581             | 0.088             | 149              |
| 34      | 593             | 0.088             | 147              |
| 36      | 605             | 0.089             | 145              |
| 38      | 617             | 0.090             | 144              |
| 40      | 629             | 0.091             | 142              |
| 42      | 641             | 0.092             | 141              |
| 44      | 653             | 0.093             | 139              |
| 46      | 665             | 0.094             | 138              |
| 48      | 677             | 0.095             | 136              |
| 50      | 689             | 0.095             | 135              |
| 52      | 701             | 0.096             | 134              |

Specifications subject to change without notice.

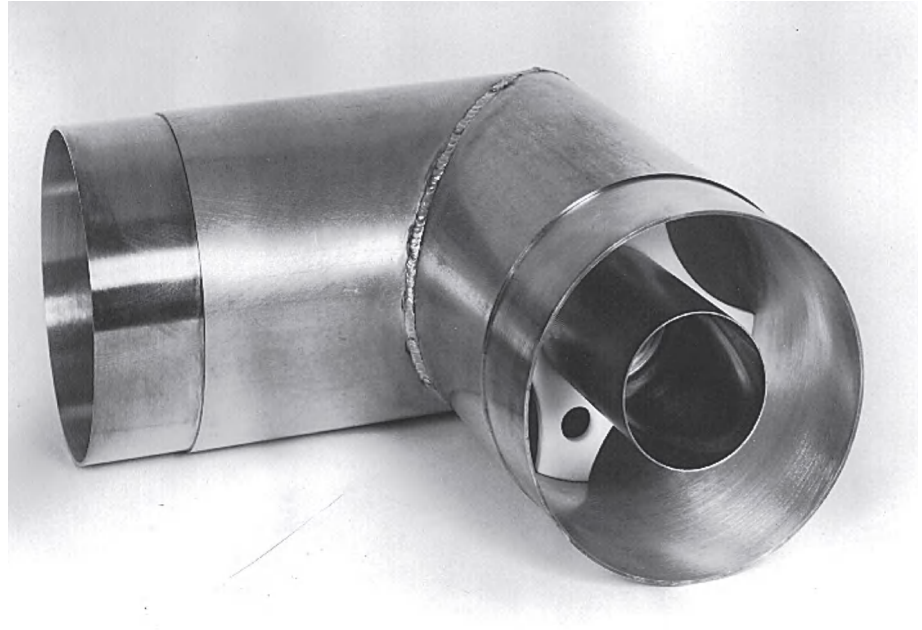
- › High Conductivity Copper
- › Excellent VSWR Characteristics
- › Low-loss PTFE™ Dielectric Insulators
- › Gas Welded Miter Elbows
- › Easy Installation

**General Specifications**

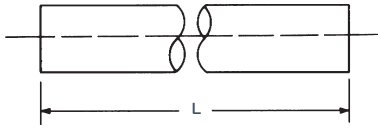
| T/L Size | OUTER  |        | INNER  |        |
|----------|--------|--------|--------|--------|
|          | OD     | ID     | OD     | ID     |
| 1 5/8"   | 1.625" | 1.527" | 0.664" | 0.588" |
| 3 1/8"   | 3.125" | 3.072" | 1.315" | 1.231" |
| 4 1/16"  | 4.062" | 3.935" | 1.711" | 1.661" |
| 6 1/8"   | 6.125" | 5.981" | 2.600" | 2.520" |

Dielectric’s 50-ohm unflanged hard drawn copper transmission line is designed for unpressurized indoor applications in AM, FM and all VHF television installations. It has excellent VSWR characteristics. It also makes use of PTFE™ disk supports and high conductivity copper. Insulator undercuts are designed with a magneformed relief that maintains a continuous inner conductor for maximum strength and conductivity.\* Components are ruggedly and precisely constructed. Miter elbows are made of heavy wall tubing and are welded for utmost strength and reliability. The inner conductor is supported with PTFE™ discs. A complete line of components in 1 5/8, 3 1/8, 4 1/16 and 6 1/8 inch line sizes provides installation versatility for a wide power range.

\*1 5/8" uses soldered inner bushings.

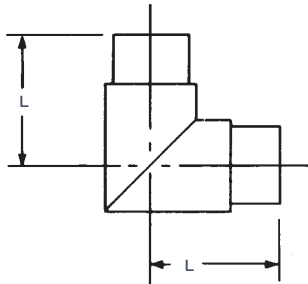


**Straight Sections**



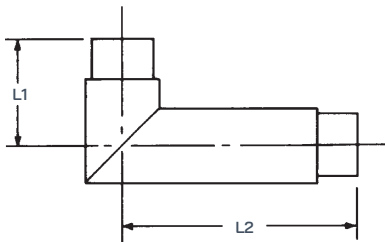
| T/L Size | Catalog Number | Impedance in Ohms | L   | Approx. Weight |
|----------|----------------|-------------------|-----|----------------|
| 1 5/8"   | 265-002        | 50                | 20' | 25 lbs         |
| 3 1/8"   | 365-002        | 50                | 20' | 52 lbs         |
| 4 1/16"  | 465-002        | 50                | 20' | 62 lbs         |
| 6 1/8"   | 665-002        | 50                | 20' | 67 lbs         |

**90° Elbow Equal Leg**



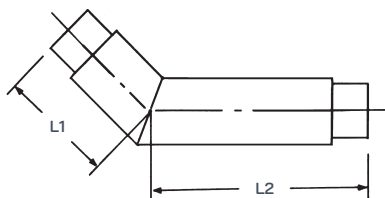
| T/L Size | Catalog Number | Impedance in Ohms | L  | Approx. Weight |
|----------|----------------|-------------------|----|----------------|
| 1 5/8"   | 265-017        | 50                | 3" | 1.75 lbs       |
| 3 1/8"   | 365-017        | 50                | 6" | 4 lbs          |
| 4 1/16"  | 465-017        | 50                | 6" | 5 lbs          |
| 6 1/8"   | 665-017        | 50                | 9" | 13 lbs         |

**90° Elbow Unequal Leg**



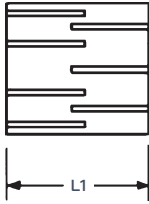
| T/L Size | Catalog Number | Impedance in Ohms | L1    | L2    | Approx. Weight |
|----------|----------------|-------------------|-------|-------|----------------|
| 1 5/8"   | 265-018        | 50                | 2.44" | 5.94" | 3 lbs          |
| 3 1/8"   | 365-018        | 50                | 3.75" | 8"    | 6 lbs          |
| 4 1/16"  | 465-018        | 50                | 6"    | 12"   | 7 lbs          |
| 6 1/8"   | 665-018        | 50                | 6"    | 12"   | 22 lbs         |

**45° Elbow Unequal Leg**



| T/L Size | Catalog Number | Impedance in Ohms | L1    | L2    | Approx. Weight |
|----------|----------------|-------------------|-------|-------|----------------|
| 1 5/8"   | 265-020        | 50                | 2.43" | 5.94" | 3 lbs          |
| 3 1/8"   | 365-020        | 50                | 3.75" | 8"    | 6 lbs          |
| 4 1/16"  | 465-020        | 50                | 6"    | 12"   | 7 lbs          |
| 6 1/8"   | 665-020        | 50                | 6"    | 12"   | 22 lbs         |

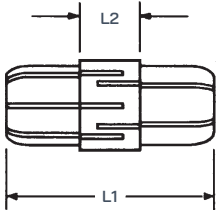
For joining line sections and components. Consists of outer sleeve, inner conductor and two clamps. Coupling, straight, unpressurized. Includes two hose clamps and inner conductor connector.



## Unflanged Coupling

| T/L Size | Catalog Number | Impedance in Ohms | L       | Approx. Weight |
|----------|----------------|-------------------|---------|----------------|
| 1 5/8"   | 265-008        | 50                | 3"      | .5 lb          |
| 3 1/8"   | 365-008        | 50                | 3 9/16" | 1 lb           |
| 4 1/16"  | 465-008        | 50                | 4"      | 2 lbs          |
| 6 1/8"   | 665-008        | 50                | 4 1/2"  | 4 lbs          |

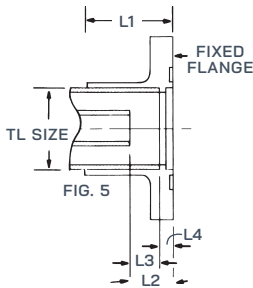
Connectors for joining inner conductors.



## Unflanged Connectors, Inner Conductor

| T/L Size | Catalog Number | Impedance in Ohms | L1      | L2    | Approx. Weight |
|----------|----------------|-------------------|---------|-------|----------------|
| 1 5/8"   | 265-007        | 50                | 2"      | 0.06" | 2 oz           |
| 3 1/8"   | 365-007        | 50                | 2 1/2"  | 0.06" | 3 oz           |
| 4 1/16"  | 465-007        | 50                | 4 1/4"  | 1.00" | 4 oz           |
| 6 1/8"   | 665-007        | 50                | 3 7/16" | 1.06" | 8 oz           |

To flange field cut line. Cannot be pressurized. Supplied with hose clamp only. The dimensions given are for cutting back the inner conductor of transmission line onto which a clamp type flange is to be used.



## Mechanical Flange

| T/L Size | Catalog Number | L1    | L2                                    | L3                                   | L4    | Approx. Weight |
|----------|----------------|-------|---------------------------------------|--------------------------------------|-------|----------------|
| 1 5/8"   | 260-015        | 1.94" | 0.59" ± 0 <sup>3</sup> / <sub>0</sub> | .40" ± 0 <sup>3</sup> / <sub>0</sub> | .187" | 2 lbs          |
| 3 1/8"   | 360-015        | 2.25" | 0.91" ± 0 <sup>3</sup> / <sub>0</sub> | .47" ± 0 <sup>3</sup> / <sub>0</sub> | .437" | 3 lbs          |
| 4 1/16"  | 460-015        | 2.31" | 1.22" ± 0 <sup>3</sup> / <sub>0</sub> | .91" ± 0 <sup>3</sup> / <sub>0</sub> | .310" | 6 lbs          |
| 6 1/8"   | 660-015        | 4.78" | 1.28" ± 0 <sup>3</sup> / <sub>0</sub> | .90" ± 0 <sup>3</sup> / <sub>0</sub> | .375" | 7 lbs          |

## Reducer, Unflanged to Type "N"

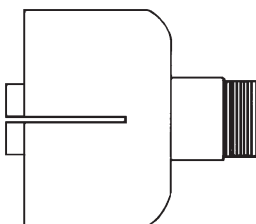
To Type "N" Female

| T/L Size | Catalog Number | Impedance in Ohms |
|----------|----------------|-------------------|
| 1 5/8"   | 265-063        | 50                |
| 3 1/8"   | 365-063        | 50                |

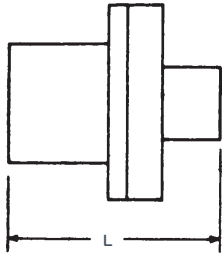
To Type "N" Male

| T/L Size | Catalog Number | Impedance in Ohms |
|----------|----------------|-------------------|
| 1 5/8"   | 265-062        | 50                |
| 3 1/8"   | 365-062        | 50                |

Supplied with hose clamp.



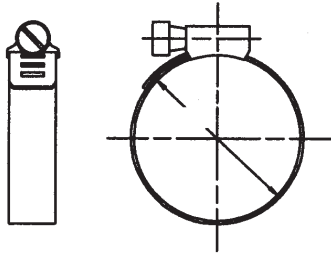
Requires two couplings (not supplied).



### Reducer, 50-Ohm Unflanged

| T/L Size          | Catalog Number | Impedance in Ohms | L      | Approx. Weight |
|-------------------|----------------|-------------------|--------|----------------|
| 3 5/8" to 1 5/8"  | 365-060        | 50                | 5"     | 3 lbs          |
| 4 1/16" to 3 1/8" | 465-060        | 50                | 7"     | 6 lbs          |
| 6 1/8" to 4 1/16" | 655-060        | 50                | 9"     | 10 lbs         |
| 6 1/8" to 3 1/8"  | 655-061        | 50                | 6 3/4" | 9 lbs          |

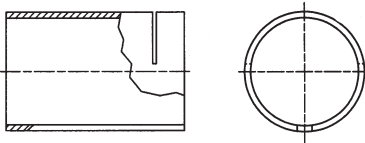
All stainless steel band and screw.



### Coupling Clamps

| Outer Diameter | Catalog Number |
|----------------|----------------|
| 1 5/8"         | 250-009        |
| 3 1/8"         | 350-009        |
| 4 1/16"        | 450-009        |
| 6 1/8"         | 650-009        |
| 8 3/16"        | 850-009        |
| 9 3/16"        | 950-009        |

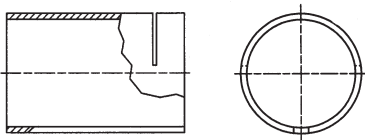
Guide for cutting outer conductors in the field.



### Cutoff Guide (Outer Conductors)

| Outer Conductor O.D. | Catalog Number | Approx. Weight |
|----------------------|----------------|----------------|
| 1 5/8"               | 260-040        | 1 lb           |
| 3 1/8"               | 360-040        | 2 lbs          |
| 4 1/16"              | 460-040        | 4 lbs          |
| 6 1/8"               | 660-040        | 6 lbs          |

Guide for cutting inner conductors in the field.

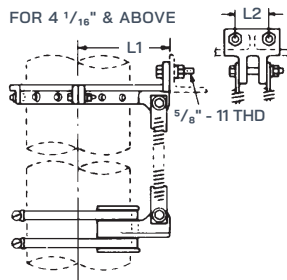


### Cutoff Guide (Inner Conductors)

| Outer Conductor O.D. | Catalog Number | Approx. Weight |
|----------------------|----------------|----------------|
| 1 5/8"               | 265-041        | 3 oz           |
| 3 1/8"               | 365-041        | 6 oz           |
| 4 1/16"              | 465-041        | 8 oz           |
| 6 1/8"               | 655-041        | 6 oz           |

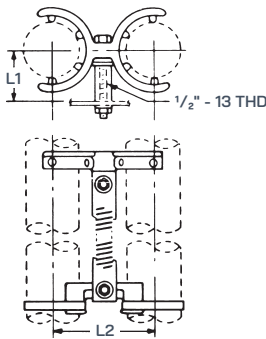
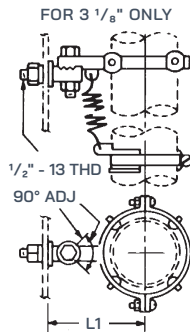
### Quality Hangers & Accessories

The materials for all components of hangers and kits are carefully selected to resist deterioration from heat, cold, humidity, or other weather conditions as well as unusual corrosive atmospheric contaminants, such as exist in industrial or coastal areas. Such material as bronze and brass castings and stainless steel springs and hardware are typical.



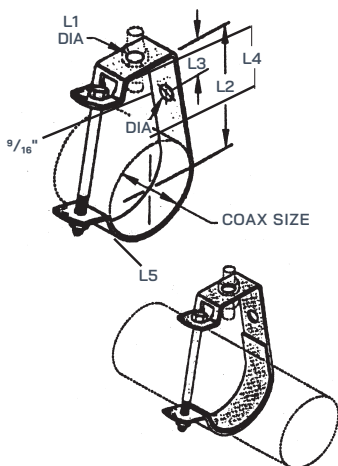
### Single Vertical Expansion

| T/L Size | Catalog Number | L1     | L2     | Approx. Weight |
|----------|----------------|--------|--------|----------------|
| 3 1/8"   | 370-036        | 5"     |        | 3 lbs          |
| 4 1/16"  | 470-036        | 5 3/4" | 2 3/8" | 7 lbs          |
| 6 1/8"   | 670-036        | 6 7/8" | 2 3/8" | 19 lbs         |
| 7 3/16"  | 770-036        | 7.5"   | 3"     | 22 lbs         |
| 8 3/16"  | 870-039        | 8"     | 3"     | 25 lbs         |
| 9 3/16"  | 970-039        | 8"     | 3"     | 26 lbs         |



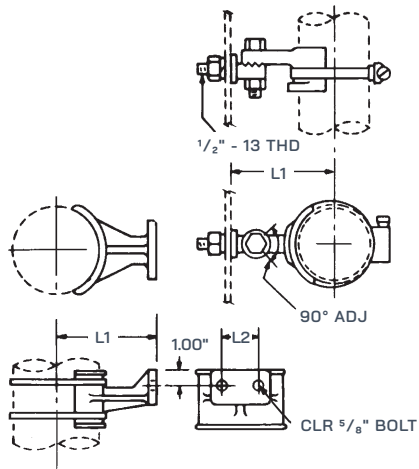
### Dual Vertical Expansion

| T/L Size | Catalog Number | L1     | L2     | Approx. Weight |
|----------|----------------|--------|--------|----------------|
| 3 1/8"   | 370-037        | 3 1/8" | 5 1/2" | 6 lbs          |



### Ceiling Hanger Kit

| T/L Size | Catalog Number | L1     | L2     | L3     | L4     | L5                  |
|----------|----------------|--------|--------|--------|--------|---------------------|
| 3 1/8"   | DC 370-050     | 9/16"  | 4 7/8" | 1 1/8" | 2 1/2" | 3/8" - 16 x 5"      |
| 4 1/16"  | DC 470-050     | 11/16" | 6 1/8" | 1 1/8" | 3 1/8" | 3/8" - 16 x 6 1/2"  |
| 6 1/8"   | DC 670-050     | 13/16" | 7 3/4" | 1 1/4" | 3 1/2" | 3/8" - 16 x 8 1/2"  |
| 7 3/16"  | DC 770-050     | 15/16" | 9 1/4" | 1 1/4" | 3 7/8" | 3/8" - 16 x 10 1/2" |
| 8 3/16"  | DC 870-050     | 15/16" | 9 1/4" | 1 1/4" | 3 7/8" | 3/8" - 16 x 10 1/2" |



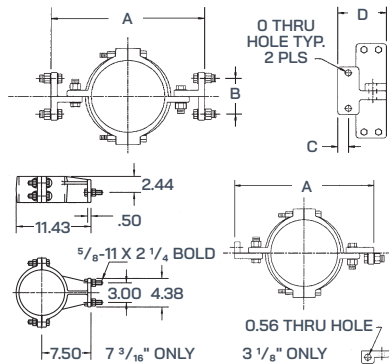
### Single, Fixed

For use with vertical runs under 1000 ft.

| T/L Size | Catalog Number | L1 | Approx. Weight |  |
|----------|----------------|----|----------------|--|
| 3 1/8"   | 370-034        | 5" | 1 lb           |  |

| T/L Size | Catalog Number | L1     | L2     | Approx. Weight |
|----------|----------------|--------|--------|----------------|
| 4 1/16"  | 470-034        | 5 3/4" | 2 3/8" | 5 lbs          |
| 6 1/8"   | 670-034        | 6 7/8" | 2 3/8" | 6 lbs          |
| 7 3/16"  | 770-034        | 7 1/2" | 3"     | 8 lbs          |
| 8 3/16"  | 870-034        | 8"     | 3"     | 11 lbs         |
| 9 3/16"  | 970-034        | 8"     | 3"     | 11 lbs         |



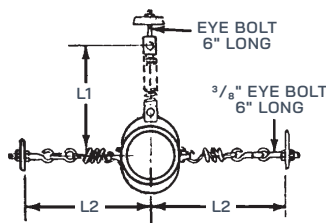
### Single, Fixed, Heavy Duty Hangers

For use with vertical runs under 1000 ft.

| T/L Size | Catalog Number | A                   | B      | C       | D        | Thru Holes |
|----------|----------------|---------------------|--------|---------|----------|------------|
| 3 1/8"   | 370-042        | 10"                 | —      | —       | —        | —          |
| 4 1/16"  | 470-042        | 11 1/2"             | 2 3/8" | 7/8"    | 3 7/8"   | 9/16"      |
| 6 1/8"   | 670-042        | 13 3/4"             | 2 3/8" | 15/16"  | 2 15/16" | 11/16"     |
| 7 3/16"  | 770-042        | SEE DRAWING AT LEFT |        |         |          |            |
| 8 3/16"  | 870-042        | 16"                 | 3"     | 31/32"  | 4 5/16"  | 11/16"     |
| 9 3/16"  | 970-042        | 17 1/2"             | 3"     | 1 3/32" | 4 13/16" | 11/16"     |

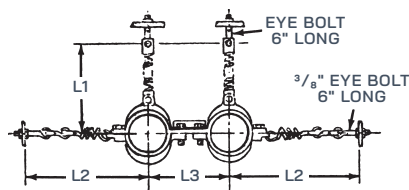
### Single Horizontal Three-Point Suspension Hangers

For horizontal suspension of a single line.



| T/L Size | Catalog Number | L1      | L2      | Approx. Weight |
|----------|----------------|---------|---------|----------------|
| 3 1/8"   | 370-032        | 15 1/8" | 15"     | 5 lbs          |
| 4 1/16"  | 470-032        | 18 1/2" | 17 1/4" | 7 lbs          |
| 6 1/8"   | 670-032        | 23 3/4" | 16 3/4" | 12 lbs         |
| 7 3/16"  | 770-032        | 24 1/4" | 17 3/8" | 20 lbs         |
| 8 3/16"  | 870-032        | 24 3/4" | 17 7/8" | 30 lbs         |
| 9 3/16"  | 970-032        | 25 1/4" | 18 3/8" | 18 lbs         |

\*Indicates free length (No Load)

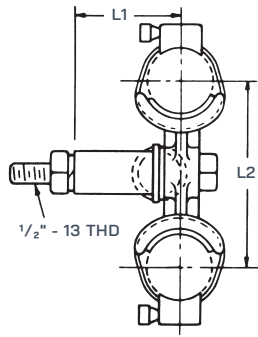


### Dual Horizontal Three-Point Suspension Hangers

For horizontal suspension of dual lines.

| T/L Size | Catalog Number | L1      | L2      | L3     | Approx. Weight |
|----------|----------------|---------|---------|--------|----------------|
| 3 1/8"   | 370-033        | 15 1/8" | 15"     | 5 1/2" | 9 lbs          |
| 4 1/16"  | 470-033        | 20 3/4" | 17 1/4" | 6 1/2" | 11 lbs         |
| 6 1/8"   | 670-033        | 28"     | 16 3/4" | 8 3/4" | 19 lbs         |

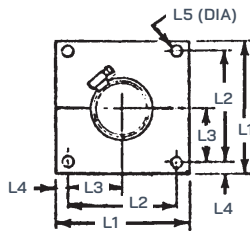
\*Indicates free length (No Load)



**Dual, Fixed**

| T/L Size | Catalog Number | L1      | L2     | Approx. Weight |
|----------|----------------|---------|--------|----------------|
| 3 1/8"   | 370-035        | 3 5/32" | 5 1/2" | 2 lbs          |

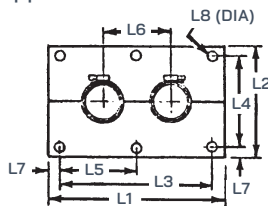
Supports single line at point of entry through wall. One anchor required on each side of wall. Mounting bolts not supplied.



**Single Horizontal Anchor**

| T/L Size | Catalog Number | L1      | L2      | L3      | L4     | L5    | Approx. Weight |
|----------|----------------|---------|---------|---------|--------|-------|----------------|
| 1 5/8"   | 270-028        | 6"      | 4 7/8"  | 2 7/16" | 9/16"  | 9/16" | 2 lbs          |
| 3 1/8"   | 370-028        | 8"      | 6 7/8"  | 3 7/16" | 9/16"  | 9/16" | 4 lbs          |
| 4 1/16"  | 470-028        | 9"      | 7 3/4"  | 3 7/8"  | 5/8"   | 9/16" | 5 lbs          |
| 6 1/8"   | 670-028        | 11 3/4" | 10 1/4" | 5 1/8"  | 3/4"   | 9/16" | 15 lbs         |
| 7 3/16"  | 770-028        | 16"     | 13 1/2" | 6 3/4"  | 1 1/4" | 3/4"  | 34 lbs         |
| 8 3/16"  | 870-028        | 16"     | 13 1/2" | 6 3/4"  | 1 1/4" | 3/4"  | 32 lbs         |
| 9 3/16"  | 970-028        | 16"     | 13 1/2" | 6 3/4"  | 1 1/4" | 3/4"  | 29 lbs         |

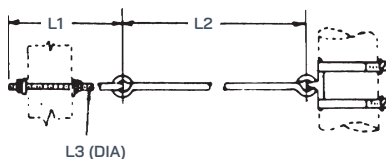
Supports two lines at point of entry through wall. One anchor required on each side of wall. Mounting bolts not supplied.



**Dual Horizontal Anchor**

| T/L Size | Catalog Number | L1      | L2      | L3      | L4      | L5      | L6      | L7    | L8    | Approx. Weight |
|----------|----------------|---------|---------|---------|---------|---------|---------|-------|-------|----------------|
| 1 5/8"   | 270-029        | 9 3/4"  | 6"      | 8 5/8"  | 4 7/8"  | 4 5/16" | 3 3/4"  | 9/16" | 9/16" | 4 lbs          |
| 3 1/8"   | 370-029        | 13 1/2" | 8"      | 12 3/8" | 6 7/8"  | 6 3/16" | 5 1/2"  | 9/16" | 9/16" | 7 lbs          |
| 4 1/16"  | 470-029        | 14 1/2" | 9"      | 13 1/4" | 7 3/4"  | 6 5/8"  | 6 1/2"  | 5/8"  | 9/16" | 8 lbs          |
| 6 1/8"   | 670-029        | 22"     | 11 3/4" | 20 1/2" | 10 1/4" | 10 1/4" | 10 1/4" | 3/4"  | 9/16" | 30 lbs         |

Mounts through single hole. Complete with two hose clamps. Used to restrict lateral motion of line while permitting vertical and horizontal movement.



**Lateral Braces**

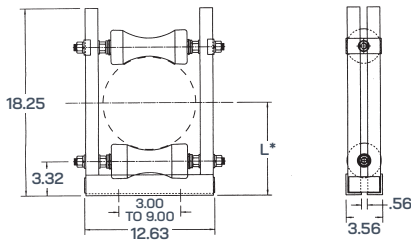
| T/L Size | Catalog Number | L1     | L2      | L3   | Approx. Weight |
|----------|----------------|--------|---------|------|----------------|
| 3 1/8"   | 370-038        | 7 3/4" | 38 3/4" | 3/8" | 2 lbs          |
| 4 1/16"  | 470-038        | 7 3/4" | 38 3/4" | 3/8" | 3 lbs          |
| 6 1/8"   | 670-038        | 7 3/4" | 38 3/4" | 3/8" | 2 lbs          |
| 7 3/16"  | 770-038        | 7 3/4" | 38 3/4" | 3/8" | 4 lbs          |
| 8 3/16"  | 870-038        | 7 3/4" | 38 3/4" | 3/8" | 4 lbs          |
| 9 3/16"  | 970-038        | 7 3/4" | 38 3/4" | 3/8" | 4 lbs          |



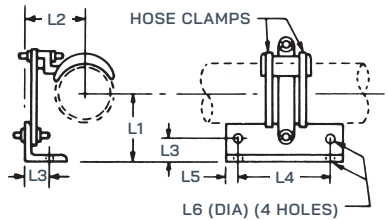
Supports single horizontal line.  
 Two required for dual lines.  
 Mounting bolts not supplied.  
 Rollers accommodate no vertical movement; use 3-point suspension hangers for horizontal runs when length of vertical run or stiffness of line will require vertical as well as horizontal movement of the horizontal run.

### Horizontal Roller Assembly

| T/L Size | Catalog Number | L      |
|----------|----------------|--------|
| 1 5/8"   | 270-027        | —      |
| 3 1/8"   | 370-027        | —      |
| 4 1/16"  | 470-027        | 6 1/2" |
| 6 1/8"   | 670-027        | 7 1/2" |
| 7 3/16"  | 770-027        | 8"     |
| 8 3/16"  | 870-027        | 8 1/2" |
| 9 3/16"  | 970-027        | 9      |



\*L DIM IS ADJUSTABLE & INDICATES MIN.



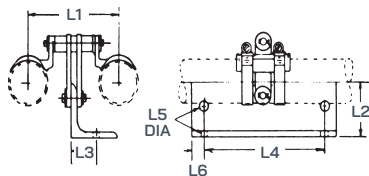
### Single Swivel Hangers

| T/L Size | Catalog Number | L1       | L2     | L3     | L4 | L5   | L6 Dia. | Approx. Weight |
|----------|----------------|----------|--------|--------|----|------|---------|----------------|
| 1 5/8"   | 270-030        | 2 1/16"  | 1 1/2" | 1 1/8" | 5" | 1/2" | 9/32"   | 2 lbs          |
| 3 1/8"   | 370-030        | 2 17/32" | 2 7/8" | 1 1/8" | 5" | 1/2" | 7/16"   | 2 lbs          |

For dual horizontal line runs.  
 Takes care of some horizontal line expansion but permits no vertical movement. Use 3-point suspension hangers for horizontal runs when length of vertical run or stiffness of line will require vertical as well as horizontal movement of the horizontal run.

### Dual Swivel Hangers

| T/L Size | Catalog Number | L1     | L2       | L3     | L4 | L5 Dia. | L6   | Approx. Weight |
|----------|----------------|--------|----------|--------|----|---------|------|----------------|
| 1 5/8"   | 270-031        | 3 3/4" | 2 1/16"  | 1 1/8" | 5" | 7/16"   | 1/2" | 3 lbs          |
| 3 1/8"   | 370-031        | 5 1/2" | 2 15/32" | 1 1/8" | 5" | 7/16"   | 1/2" | 4 lbs          |



### Insulated Hangers

Available for FM installations onto AM towers. Contact factory for details,

For spring tension charts refer to installation guide.

## 3 1/8" 50-ohm Line (Channels 2-69)

Peak Power Rating (kW) 2,180

Peak Voltage Rating (kV) 10

Efficiency (%) Total Length in Feet

| Channel | Loss dB/100' | Avg.* Power kW | 200  | 600  | 1000 | 1200 | 1600 | 2000 |
|---------|--------------|----------------|------|------|------|------|------|------|
| 2       | 0.072        | 71             | 96.7 | 90.5 | 84.7 | 81.9 | 76.6 | 71.7 |
| 3       | 0.076        | 68             | 96.6 | 90.0 | 83.9 | 81.0 | 75.5 | 70.3 |
| 4       | 0.080        | 64             | 96.4 | 89.5 | 83.2 | 80.2 | 74.5 | 69.2 |
| 5       | 0.086        | 60             | 96.1 | 88.9 | 82.1 | 78.9 | 72.8 | 67.4 |
| 6       | 0.089        | 58             | 96.0 | 88.4 | 81.5 | 78.2 | 72.0 | 66.4 |
| 201-FM  | 0.093        | 56             | 95.9 | 88.1 | 80.9 | 77.6 | 71.3 | 65.5 |
| 300-FM  | 0.103        | 50             | 95.4 | 86.9 | 79.1 | 75.4 | 68.7 | 62.5 |
| 7       | 0.130        | 40             | 94.2 | 83.6 | 74.1 | 69.9 | 62.0 | 54.9 |
| 8       | 0.132        | 39             | 94.1 | 83.4 | 73.8 | 69.5 | 61.5 | 54.4 |
| 9       | 0.134        | 38             | 94.0 | 83.1 | 73.4 | 69.2 | 61.0 | 53.8 |
| 10      | 0.136        | 38             | 94.0 | 82.9 | 73.1 | 68.8 | 60.6 | 53.4 |
| 11      | 0.138        | 37             | 93.8 | 82.6 | 72.8 | 68.3 | 60.2 | 52.9 |
| 12      | 0.141        | 37             | 93.7 | 82.3 | 72.3 | 67.7 | 59.5 | 52.2 |
| 13      | 0.143        | 36             | 93.6 | 82.1 | 71.9 | 67.4 | 59.1 | 51.6 |
| 14      | 0.223        | 24             | 90.2 | 73.5 | 59.8 | 54.0 | 44.0 | 35.7 |
| 16      | 0.227        | 24             | 90.1 | 73.1 | 59.3 | 53.4 | 43.3 | 35.1 |
| 18      | 0.231        | 24             | 89.9 | 72.7 | 58.8 | 52.8 | 42.7 | 34.5 |
| 20      | 0.234        | 23             | 89.8 | 72.4 | 58.3 | 52.4 | 42.2 | 33.9 |
| 22      | 0.237        | 23             | 89.7 | 72.1 | 57.9 | 52.0 | 41.8 | 33.5 |
| 24      | 0.240        | 23             | 89.5 | 71.8 | 57.5 | 51.5 | 41.3 | 33.0 |
| 26      | 0.243        | 23             | 89.4 | 71.5 | 57.2 | 51.1 | 40.9 | 32.7 |
| 28      | 0.247        | 22             | 89.3 | 71.1 | 56.6 | 50.5 | 40.3 | 32.0 |
| 30      | 0.250        | 22             | 89.1 | 70.8 | 56.2 | 50.1 | 39.8 | 31.5 |
| 32      | 0.254        | 22             | 89.0 | 70.4 | 55.7 | 49.6 | 39.2 | 31.1 |
| 34      | 0.256        | 22             | 88.9 | 70.2 | 55.5 | 49.3 | 38.9 | 30.8 |
| 36      | 0.258        | 21             | 88.8 | 70.0 | 55.2 | 49.0 | 38.7 | 30.4 |
| 38      | 0.262        | 21             | 88.6 | 69.6 | 54.7 | 48.5 | 38.1 | 29.9 |
| 40      | 0.265        | 21             | 88.5 | 69.3 | 54.3 | 48.1 | 37.7 | 29.4 |
| 42      | 0.267        | 21             | 88.4 | 69.2 | 54.1 | 47.8 | 37.4 | 29.2 |
| 44      | 0.270        | 21             | 88.3 | 68.9 | 53.7 | 47.4 | 37.0 | 28.8 |
| 46      | 0.274        | 20             | 88.1 | 68.5 | 53.2 | 46.9 | 36.4 | 28.3 |
| 48      | 0.276        | 20             | 88.1 | 68.3 | 53.0 | 46.6 | 36.2 | 28.0 |
| 50      | 0.279        | 20             | 87.9 | 68.0 | 52.6 | 46.3 | 35.8 | 27.6 |
| 52      | 0.282        | 20             | 87.8 | 67.7 | 52.2 | 45.9 | 35.4 | 27.2 |
| 54      | 0.284        | 20             | 87.7 | 67.5 | 52.0 | 45.6 | 35.1 | 27.0 |
| 56      | 0.286        | 20             | 87.7 | 67.4 | 51.8 | 45.4 | 34.9 | 26.8 |
| 58      | 0.290        | 19             | 87.5 | 67.0 | 51.3 | 44.9 | 34.4 | 26.3 |
| 60      | 0.294        | 19             | 87.3 | 66.6 | 50.8 | 44.4 | 33.9 | 25.8 |
| 62      | 0.297        | 19             | 87.2 | 66.3 | 50.5 | 44.0 | 33.5 | 25.5 |
| 64      | 0.299        | 19             | 87.1 | 66.2 | 50.2 | 43.8 | 33.2 | 25.2 |
| 66      | 0.301        | 19             | 87.1 | 66.0 | 50.0 | 43.5 | 33.0 | 25.0 |
| 68      | 0.303        | 19             | 87.0 | 65.8 | 49.8 | 43.4 | 32.8 | 24.8 |
| 69      | 0.303        | 19             | 87.0 | 65.8 | 49.8 | 43.4 | 32.7 | 24.8 |

## 4 1/16" 50-ohm Line (Channels 2-69)

Peak Power Rating (kW) 3,685

Peak Voltage Rating (kV) 13

Efficiency (%) Total Length in Feet

| Channel | Loss dB/100' | Avg.* Power kW | 200  | 600  | 1000 | 1200 | 1600 | 2000 |
|---------|--------------|----------------|------|------|------|------|------|------|
| 2       | 0.050        | 114            | 97.7 | 93.4 | 89.2 | 87.2 | 83.3 | 79.5 |
| 3       | 0.052        | 108            | 97.6 | 93.0 | 88.7 | 86.5 | 82.5 | 78.6 |
| 4       | 0.055        | 103            | 97.5 | 92.7 | 88.2 | 86.0 | 81.7 | 77.7 |
| 5       | 0.059        | 96             | 97.3 | 92.2 | 87.4 | 85.0 | 80.6 | 76.3 |
| 6       | 0.061        | 92             | 97.2 | 91.9 | 86.9 | 84.5 | 79.9 | 75.5 |
| 201-FM  | 0.071        | 89             | 96.8 | 90.7 | 84.9 | 82.2 | 77.0 | 72.1 |
| 300-FM  | 0.079        | 80             | 96.4 | 89.7 | 83.4 | 80.4 | 74.7 | 69.5 |
| 7       | 0.089        | 63             | 96.0 | 88.5 | 81.6 | 78.3 | 72.2 | 66.5 |
| 8       | 0.090        | 62             | 95.9 | 88.3 | 81.3 | 78.0 | 71.8 | 66.0 |
| 9       | 0.092        | 61             | 95.9 | 88.1 | 81.0 | 77.6 | 71.4 | 65.6 |
| 10      | 0.093        | 60             | 95.8 | 87.9 | 80.7 | 77.3 | 71.0 | 65.2 |
| 11      | 0.094        | 59             | 95.7 | 87.8 | 80.4 | 77.0 | 70.6 | 64.7 |
| 12      | 0.096        | 59             | 95.7 | 87.6 | 80.2 | 76.7 | 70.2 | 64.3 |
| 13      | 0.097        | 58             | 95.6 | 87.4 | 79.9 | 76.4 | 69.9 | 63.9 |
| 14      | 0.146        | 39             | 93.5 | 81.7 | 71.4 | 66.8 | 58.4 | 51.0 |
| 16      | 0.148        | 38             | 93.4 | 81.5 | 71.1 | 66.4 | 58.0 | 50.6 |
| 18      | 0.150        | 38             | 93.3 | 81.3 | 70.8 | 66.1 | 57.6 | 50.1 |
| 20      | 0.152        | 37             | 93.3 | 81.1 | 70.5 | 65.7 | 57.2 | 49.7 |
| 22      | 0.154        | 37             | 93.2 | 80.9 | 70.2 | 65.4 | 56.8 | 49.3 |
| 24      | 0.155        | 36             | 93.1 | 80.7 | 69.9 | 65.1 | 56.4 | 48.9 |
| 26      | 0.157        | 36             | 93.0 | 80.5 | 69.6 | 64.8 | 56.1 | 48.5 |
| 28      | 0.159        | 36             | 92.9 | 80.3 | 69.4 | 64.5 | 55.7 | 48.1 |
| 30      | 0.161        | 35             | 92.9 | 80.1 | 69.1 | 64.2 | 55.3 | 47.7 |
| 32      | 0.162        | 35             | 92.8 | 79.9 | 68.8 | 63.9 | 55.0 | 47.3 |
| 34      | 0.164        | 34             | 92.7 | 79.7 | 68.5 | 63.6 | 54.6 | 47.0 |
| 36      | 0.166        | 34             | 92.7 | 79.5 | 68.3 | 63.3 | 54.3 | 46.6 |
| 38      | 0.167        | 34             | 92.6 | 79.4 | 68.0 | 63.0 | 54.0 | 46.3 |
| 40      | 0.169        | 33             | 92.5 | 79.2 | 67.8 | 62.7 | 53.6 | 45.9 |
| 42      | 0.171        | 33             | 92.4 | 79.0 | 67.5 | 62.4 | 53.3 | 45.6 |
| 44      | 0.172        | 33             | 92.4 | 78.8 | 67.2 | 62.1 | 53.0 | 45.2 |
| 46      | 0.174        | 33             | 92.3 | 78.6 | 67.0 | 61.8 | 52.7 | 44.9 |
| 48      | 0.176        | 32             | 92.2 | 78.5 | 66.8 | 61.6 | 52.4 | 44.6 |
| 50      | 0.177        | 32             | 92.2 | 78.3 | 66.5 | 61.3 | 52.1 | 44.2 |
| 52      | 0.179        | 32             | 92.1 | 78.1 | 66.3 | 61.0 | 51.8 | 43.9 |
| 54      | 0.180        | 31             | 92.0 | 78.0 | 66.0 | 60.8 | 51.5 | 43.6 |
| 56      | 0.182        | 31             | 92.0 | 77.8 | 65.8 | 60.5 | 51.2 | 43.3 |
| 58      | 0.183        | 31             | 91.9 | 77.6 | 65.6 | 60.3 | 50.9 | 43.0 |
| 60      | 0.185        | 31             | 91.8 | 77.5 | 65.3 | 60.0 | 50.6 | 42.7 |
| 62      | 0.186        | 30             | 91.8 | 77.3 | 65.1 | 59.8 | 50.3 | 42.4 |
| 64      | 0.188        | 30             | 91.7 | 77.1 | 64.9 | 59.5 | 50.1 | 42.1 |
| 66      | 0.189        | 30             | 91.7 | 77.0 | 64.7 | 59.3 | 49.8 | 41.8 |
| 68      | 0.191        | 30             | 91.6 | 76.8 | 64.5 | 59.0 | 49.5 | 41.5 |
| 69      | 0.191        | 30             | 91.6 | 76.8 | 64.3 | 58.9 | 49.4 | 41.4 |

\*Power handling refers to EIA, digitLine and Ultimate line. Does not apply to EHTLine or EHT/digitLine. Refer to pages 14-15.

Peak Voltage Ratings are based on 4:1 margin of safety to theoretical.

Peak Power Ratings are calculated from peak voltage according to the formula, Ppk – Vpk<sup>2</sup>/Zo.

To determine the peak power based on the RMS of the peak voltage, divide the listed peak powers by 2.

## 6 1/8" 50-ohm Line (Channels 2-64)

Peak Power Rating (kW) 8,513  
Peak Voltage Rating (kV) 20

Efficiency (%) Total Length in Feet

| Channel | Loss dB/100' | Avg.* Power kW | 200  | 600  | 1000 | 1200 | 1600 | 2000 |
|---------|--------------|----------------|------|------|------|------|------|------|
| 2       | 0.039        | 240            | 98.2 | 94.7 | 91.4 | 89.7 | 86.5 | 83.5 |
| 3       | 0.041        | 227            | 98.1 | 94.5 | 90.9 | 89.2 | 85.9 | 82.7 |
| 4       | 0.043        | 217            | 98.0 | 94.2 | 90.5 | 88.7 | 85.3 | 82.0 |
| 5       | 0.046        | 202            | 97.9 | 93.8 | 89.9 | 88.0 | 84.3 | 80.8 |
| 6       | 0.048        | 195            | 97.8 | 93.6 | 89.5 | 87.6 | 83.8 | 80.2 |
| 201-FM  | 0.049        | 188            | 97.8 | 93.5 | 89.3 | 87.3 | 83.5 | 79.8 |
| 300-FM  | 0.052        | 169            | 97.6 | 93.1 | 88.7 | 86.6 | 82.6 | 78.7 |
| 7       | 0.069        | 133            | 96.9 | 90.9 | 85.3 | 82.6 | 77.5 | 72.7 |
| 8       | 0.070        | 131            | 96.8 | 90.7 | 85.0 | 82.3 | 77.2 | 72.3 |
| 9       | 0.071        | 129            | 96.8 | 90.6 | 84.8 | 82.1 | 76.8 | 71.9 |
| 10      | 0.073        | 127            | 96.7 | 90.5 | 84.6 | 81.8 | 76.5 | 71.6 |
| 11      | 0.074        | 125            | 96.7 | 90.3 | 84.4 | 81.6 | 76.2 | 71.2 |
| 12      | 0.075        | 123            | 96.6 | 90.2 | 84.2 | 81.2 | 75.9 | 70.9 |
| 13      | 0.076        | 122            | 96.6 | 90.0 | 84.0 | 81.1 | 75.6 | 70.5 |
| 14      | 0.113        | 81             | 94.9 | 85.5 | 77.1 | 73.2 | 65.9 | 59.4 |
| 16      | 0.115        | 80             | 94.9 | 85.4 | 76.8 | 72.9 | 65.6 | 59.0 |
| 18      | 0.116        | 79             | 94.8 | 85.2 | 76.6 | 72.6 | 65.2 | 58.6 |
| 20      | 0.117        | 78             | 94.7 | 85.0 | 76.3 | 72.3 | 64.9 | 58.3 |
| 22      | 0.119        | 77             | 94.7 | 84.9 | 76.1 | 72.0 | 64.6 | 57.9 |
| 24      | 0.120        | 76             | 94.6 | 84.7 | 75.8 | 71.8 | 64.3 | 57.5 |
| 26      | 0.121        | 76             | 94.6 | 84.6 | 75.6 | 71.5 | 63.9 | 57.2 |
| 28      | 0.123        | 75             | 94.5 | 84.4 | 75.4 | 71.2 | 63.6 | 56.8 |
| 30      | 0.124        | 74             | 94.4 | 84.3 | 75.2 | 71.0 | 63.3 | 56.5 |
| 32      | 0.125        | 73             | 94.4 | 84.1 | 74.9 | 70.7 | 63.0 | 56.1 |
| 34      | 0.127        | 73             | 94.3 | 84.0 | 74.7 | 70.5 | 62.7 | 55.8 |
| 36      | 0.128        | 72             | 94.3 | 83.8 | 74.5 | 70.2 | 62.4 | 55.5 |
| 38      | 0.129        | 71             | 94.2 | 83.7 | 74.3 | 70.0 | 62.1 | 55.2 |
| 40      | 0.130        | 70             | 94.2 | 83.5 | 74.1 | 69.7 | 61.8 | 54.8 |
| 42      | 0.132        | 70             | 94.1 | 83.4 | 73.8 | 69.5 | 61.6 | 54.5 |
| 44      | 0.133        | 69             | 94.1 | 83.2 | 73.6 | 69.3 | 61.3 | 54.2 |
| 46      | 0.134        | 68             | 94.0 | 83.1 | 73.4 | 69.0 | 61.0 | 53.9 |
| 48      | 0.135        | 68             | 94.0 | 83.0 | 73.2 | 68.8 | 60.7 | 53.6 |
| 50      | 0.136        | 67             | 93.9 | 82.8 | 73.0 | 68.6 | 60.5 | 53.3 |
| 52      | 0.138        | 67             | 93.9 | 82.7 | 72.8 | 68.4 | 60.2 | 53.0 |
| 54      | 0.139        | 66             | 93.8 | 82.5 | 72.6 | 68.1 | 60.0 | 52.8 |
| 56      | 0.140        | 66             | 93.8 | 82.4 | 72.4 | 67.9 | 59.7 | 52.5 |
| 58      | 0.141        | 65             | 93.7 | 82.3 | 72.2 | 67.7 | 59.4 | 52.2 |
| 60      | 0.142        | 64             | 93.7 | 82.2 | 72.1 | 67.5 | 59.2 | 51.9 |
| 62      | 0.143        | 64             | 93.6 | 82.0 | 71.9 | 67.3 | 58.9 | 51.7 |
| 64      | 0.145        | 63             | 93.6 | 81.9 | 71.7 | 67.1 | 58.7 | 51.4 |

## 6 1/8" 75-ohm Line (Channels 2-69)

Peak Power Rating (kW) 5,550  
Peak Voltage Rating (kV) 20

Efficiency (%) Total Length in Feet

| Channel | Loss dB/100' | Avg.* Power kW | 200  | 600  | 1000 | 1200 | 1600 | 2000 |
|---------|--------------|----------------|------|------|------|------|------|------|
| 2       | 0.034        | 206            | 98.5 | 95.4 | 92.5 | 91.1 | 88.3 | 85.5 |
| 3       | 0.035        | 195            | 98.4 | 95.2 | 92.1 | 90.7 | 87.7 | 84.8 |
| 4       | 0.037        | 186            | 98.3 | 95.0 | 91.8 | 90.2 | 87.2 | 84.2 |
| 5       | 0.040        | 173            | 98.2 | 94.6 | 91.2 | 89.5 | 86.3 | 83.1 |
| 6       | 0.042        | 167            | 98.1 | 94.4 | 90.8 | 89.1 | 85.8 | 82.4 |
| 7       | 0.061        | 115            | 97.1 | 91.8 | 86.7 | 84.4 | 79.7 | 75.1 |
| 8       | 0.062        | 113            | 97.1 | 91.7 | 86.6 | 84.1 | 79.4 | 74.9 |
| 9       | 0.063        | 111            | 97.0 | 91.6 | 86.4 | 83.9 | 79.1 | 74.6 |
| 10      | 0.064        | 109            | 97.1 | 91.5 | 86.2 | 83.7 | 78.9 | 74.3 |
| 11      | 0.065        | 107            | 97.0 | 91.4 | 86.0 | 83.5 | 78.6 | 73.9 |
| 12      | 0.066        | 106            | 97.0 | 91.2 | 85.8 | 83.2 | 78.3 | 73.8 |
| 13      | 0.067        | 104            | 96.9 | 91.1 | 85.6 | 83.0 | 78.0 | 73.2 |
| 14      | 0.105        | 70             | 95.3 | 86.5 | 78.5 | 74.8 | 67.9 | 61.6 |
| 16      | 0.107        | 69             | 95.2 | 86.3 | 78.2 | 74.4 | 67.4 | 61.1 |
| 18      | 0.108        | 68             | 95.2 | 86.1 | 78.0 | 74.2 | 67.2 | 60.8 |
| 20      | 0.109        | 67             | 95.1 | 86.0 | 77.7 | 73.9 | 66.8 | 60.3 |
| 22      | 0.111        | 66             | 95.0 | 85.8 | 77.5 | 73.6 | 66.4 | 60.0 |
| 24      | 0.113        | 66             | 94.9 | 85.5 | 77.1 | 73.2 | 65.9 | 59.4 |
| 26      | 0.114        | 65             | 94.9 | 85.4 | 76.9 | 73.0 | 65.7 | 59.1 |
| 28      | 0.115        | 64             | 94.8 | 85.3 | 76.7 | 72.8 | 65.5 | 58.8 |
| 30      | 0.117        | 64             | 94.8 | 85.1 | 76.4 | 72.4 | 65.0 | 58.3 |
| 32      | 0.118        | 63             | 94.7 | 85.0 | 76.2 | 72.2 | 64.7 | 58.0 |
| 34      | 0.119        | 62             | 94.7 | 84.8 | 76.0 | 72.0 | 64.5 | 57.8 |
| 36      | 0.120        | 62             | 94.6 | 84.7 | 75.8 | 71.7 | 64.2 | 57.4 |
| 38      | 0.121        | 61             | 94.6 | 84.5 | 75.6 | 71.5 | 63.9 | 57.1 |
| 40      | 0.123        | 60             | 94.5 | 84.4 | 75.3 | 71.2 | 63.6 | 56.8 |
| 42      | 0.124        | 60             | 94.5 | 84.3 | 75.2 | 71.0 | 63.3 | 56.5 |
| 44      | 0.125        | 59             | 94.4 | 84.1 | 75.0 | 70.8 | 63.1 | 56.2 |
| 46      | 0.126        | 59             | 94.3 | 84.0 | 74.7 | 70.6 | 62.7 | 55.8 |
| 48      | 0.128        | 58             | 94.3 | 83.8 | 74.0 | 70.2 | 62.4 | 55.3 |
| 50      | 0.130        | 58             | 94.2 | 83.6 | 74.1 | 69.8 | 61.9 | 54.9 |
| 52      | 0.131        | 57             | 94.1 | 83.4 | 74.0 | 69.6 | 61.7 | 54.7 |
| 54      | 0.132        | 57             | 94.1 | 83.3 | 73.7 | 69.3 | 61.4 | 54.3 |
| 56      | 0.133        | 56             | 94.0 | 83.2 | 73.5 | 69.1 | 61.2 | 54.0 |
| 58      | 0.134        | 56             | 94.0 | 83.0 | 73.4 | 69.0 | 60.9 | 53.8 |
| 60      | 0.136        | 55             | 93.9 | 82.9 | 73.1 | 68.7 | 60.6 | 53.4 |
| 62      | 0.137        | 55             | 93.9 | 82.8 | 72.9 | 68.5 | 60.4 | 53.1 |
| 64      | 0.138        | 54             | 93.8 | 82.6 | 72.8 | 68.3 | 60.2 | 52.9 |
| 66      | 0.139        | 54             | 93.8 | 82.5 | 72.6 | 68.1 | 60.0 | 52.7 |
| 68      | 0.141        | 54             | 93.7 | 82.3 | 72.3 | 67.7 | 59.5 | 52.3 |
| 69      | 0.141        | 53             | 93.7 | 82.2 | 72.2 | 67.6 | 59.4 | 52.1 |

\*Power handling refers to EIA, digitLine and Ultimate line. Does not apply to EHTLine or EHT/digitLine. Refer to pages 14-15.

Peak Voltage Ratings are based on 4:1 margin of safety to theoretical.

Peak Power Ratings are calculated from peak voltage according to the formula,  $P_{pk} = V_{pk}^2/Z_0$ .

To determine the peak power based on the RMS of the peak voltage, divide the listed peak powers by 2.

## 7 3/16" 75-ohm Line (Channels 2-68)

Peak Power Rating (kW) 7,458  
Peak Voltage Rating (kV) 23

Efficiency (%) Total Length in Feet

| Channel | Loss dB/100' | Avg.* Power kW | 200  | 600  | 1000  | 1200 | 1600 | 2000 |
|---------|--------------|----------------|------|------|-------|------|------|------|
| 2       | 0.029        | 282            | 98.6 | 95.8 | 93.21 | 91.8 | 89.2 | 86.6 |
| 3       | 0.031        | 267            | 98.5 | 95.6 | 92.7  | 91.4 | 88.6 | 86.0 |
| 4       | 0.032        | 255            | 98.4 | 95.4 | 92.4  | 91.0 | 88.1 | 85.4 |
| 5       | 0.034        | 238            | 98.3 | 95.1 | 91.9  | 90.4 | 87.4 | 84.5 |
| 6       | 0.036        | 229            | 98.3 | 94.9 | 91.6  | 90.0 | 86.9 | 83.9 |
| FM      | 0.037        | 225            | 98.2 | 94.8 | 91.5  | 89.9 | 86.7 | 83.7 |
| FM      | 0.041        | 202            | 98.0 | 94.2 | 90.6  | 88.8 | 85.4 | 82.1 |
| 7       | 0.053        | 156            | 97.5 | 92.7 | 88.1  | 85.9 | 81.7 | 77.7 |
| 8       | 0.054        | 153            | 97.5 | 92.6 | 87.9  | 85.7 | 81.5 | 77.3 |
| 9       | 0.055        | 150            | 97.4 | 92.5 | 87.8  | 85.5 | 81.1 | 77.0 |
| 10      | 0.056        | 148            | 97.4 | 92.4 | 87.6  | 85.3 | 80.9 | 76.7 |
| 11      | 0.057        | 145            | 97.3 | 92.2 | 87.4  | 85.1 | 80.6 | 76.4 |
| 12      | 0.058        | 143            | 97.3 | 92.1 | 87.2  | 84.9 | 80.4 | 76.1 |
| 13      | 0.058        | 141            | 97.3 | 92.0 | 87.1  | 84.7 | 80.1 | 75.8 |
| 14      | 0.090        | 92             | 96.0 | 88.3 | 81.3  | 78.0 | 71.9 | 66.1 |
| 16      | 0.092        | 91             | 95.9 | 88.2 | 81.1  | 77.8 | 71.6 | 65.8 |
| 18      | 0.093        | 90             | 95.9 | 88.1 | 80.9  | 77.6 | 71.3 | 65.5 |
| 20      | 0.094        | 88             | 95.8 | 87.9 | 80.7  | 77.3 | 71.0 | 65.1 |
| 22      | 0.095        | 87             | 95.8 | 87.8 | 80.5  | 77.1 | 70.7 | 64.8 |
| 24      | 0.096        | 86             | 95.7 | 87.7 | 80.3  | 76.9 | 70.4 | 64.5 |
| 26      | 0.098        | 85             | 95.7 | 87.5 | 80.1  | 76.6 | 70.1 | 64.2 |
| 28      | 0.099        | 84             | 95.6 | 87.4 | 79.9  | 76.4 | 69.9 | 63.8 |
| 30      | 0.100        | 83             | 95.6 | 87.3 | 79.7  | 76.2 | 69.6 | 63.6 |
| 32      | 0.101        | 82             | 95.5 | 87.2 | 79.5  | 76.0 | 69.3 | 63.3 |
| 34      | 0.102        | 81             | 95.5 | 87.0 | 79.4  | 75.8 | 69.1 | 63.0 |
| 36      | 0.104        | 81             | 95.4 | 86.9 | 79.2  | 75.6 | 68.8 | 62.7 |
| 38      | 0.105        | 80             | 95.4 | 86.8 | 79.0  | 75.3 | 68.6 | 62.4 |
| 40      | 0.106        | 79             | 95.3 | 86.7 | 78.8  | 75.1 | 68.3 | 62.1 |
| 42      | 0.107        | 78             | 95.3 | 86.6 | 78.6  | 74.9 | 68.1 | 61.8 |
| 44      | 0.108        | 77             | 95.3 | 86.4 | 78.4  | 74.7 | 67.8 | 61.5 |
| 46      | 0.109        | 77             | 95.2 | 86.3 | 78.3  | 74.5 | 67.6 | 61.3 |
| 48      | 0.110        | 76             | 95.2 | 86.2 | 78.1  | 74.3 | 67.3 | 61.0 |
| 50      | 0.111        | 75             | 95.1 | 86.1 | 77.9  | 74.1 | 67.1 | 60.7 |
| 52      | 0.113        | 74             | 95.1 | 86.0 | 77.8  | 74.0 | 66.9 | 60.5 |
| 54      | 0.114        | 74             | 95.1 | 85.9 | 77.6  | 73.8 | 66.6 | 60.2 |
| 56      | 0.115        | 73             | 95.0 | 85.8 | 77.4  | 73.6 | 66.4 | 60.0 |
| 58      | 0.116        | 72             | 95.0 | 85.7 | 77.3  | 73.4 | 66.2 | 59.7 |
| 60      | 0.117        | 72             | 94.9 | 85.6 | 77.1  | 73.2 | 66.0 | 59.5 |
| 62      | 0.118        | 71             | 94.9 | 85.5 | 76.9  | 73.0 | 65.7 | 59.2 |
| 64      | 0.119        | 71             | 94.9 | 85.3 | 76.8  | 72.8 | 65.5 | 58.9 |
| 66      | 0.120        | 70             | 94.8 | 85.2 | 76.6  | 72.6 | 65.3 | 58.7 |
| 68      | 0.121        | 69             | 94.8 | 85.1 | 76.5  | 72.5 | 65.1 | 58.5 |

\*Power handling refers to EIA, digitLine and Ultimate line. Does not apply to EHTLine or EHT/digitLine. Refer to pages 14-15.

Peak Voltage Ratings are based on 4:1 margin of safety to theoretical.

Peak Power Ratings are calculated from peak voltage according to the formula, Ppk – Vpk<sup>2</sup>/Zo.

To determine the peak power based on the RMS of the peak voltage, divide the listed peak powers by 2.

## 8 3/16" 75-ohm Line (Channels 2-52)

Peak Power Rating (kW) 9,930  
Peak Voltage Rating (kV) 27

Efficiency (%) Total Length in Feet

| Channel | Loss dB/100' | Avg.* Power kW | 800  | 1000 | 1400 | 1800 | 2000 |
|---------|--------------|----------------|------|------|------|------|------|
| 2       | 0.028        | 336            | 95.0 | 93.8 | 91.4 | 89.0 | 88.0 |
| 3       | 0.029        | 320            | 94.8 | 93.5 | 91.0 | 88.6 | 87.4 |
| 4       | 0.031        | 306            | 94.5 | 93.2 | 90.6 | 88.1 | 86.9 |
| 5       | 0.033        | 286            | 94.2 | 92.7 | 90.0 | 87.3 | 86.0 |
| 6       | 0.034        | 275            | 93.9 | 92.5 | 89.6 | 86.9 | 85.5 |
| 201-FM  | 0.034        | 270            | 93.5 | 92.4 | 89.5 | 86.7 | 85.3 |
| 300-FM  | 0.038        | 244            | 93.2 | 91.6 | 88.4 | 85.4 | 83.9 |
| 7       | 0.049        | 191            | 91.4 | 89.4 | 85.5 | 81.7 | 79.9 |
| 8       | 0.049        | 188            | 91.3 | 89.2 | 85.3 | 81.5 | 79.6 |
| 9       | 0.050        | 185            | 91.2 | 89.1 | 85.0 | 81.2 | 79.3 |
| 10      | 0.051        | 182            | 91.0 | 88.9 | 84.8 | 80.9 | 79.0 |
| 11      | 0.052        | 179            | 90.9 | 88.7 | 84.6 | 80.7 | 78.8 |
| 12      | 0.053        | 176            | 90.8 | 88.6 | 84.4 | 80.4 | 78.5 |
| 13      | 0.053        | 174            | 90.6 | 88.4 | 84.2 | 80.2 | 78.2 |
| 14      | 0.079        | 117            | 86.5 | 83.4 | 77.5 | 72.1 | 69.5 |
| 15      | 0.079        | 116            | 86.4 | 83.3 | 77.4 | 72.0 | 69.4 |
| 16      | 0.080        | 116            | 86.3 | 83.2 | 77.3 | 71.8 | 69.2 |
| 17      | 0.080        | 115            | 86.2 | 83.1 | 77.2 | 71.7 | 69.0 |
| 18      | 0.081        | 114            | 86.2 | 83.0 | 77.0 | 71.5 | 68.9 |
| 19      | 0.081        | 114            | 86.1 | 82.9 | 76.9 | 71.4 | 68.7 |
| 20      | 0.082        | 113            | 86.0 | 82.8 | 76.8 | 71.2 | 68.6 |
| 21      | 0.082        | 112            | 85.9 | 82.7 | 76.7 | 71.1 | 68.4 |
| 22      | 0.083        | 112            | 85.8 | 82.6 | 76.6 | 70.9 | 68.3 |
| 23      | 0.083        | 111            | 85.8 | 82.5 | 76.4 | 70.8 | 68.1 |
| 24      | 0.084        | 110            | 85.7 | 82.4 | 76.3 | 70.7 | 68.0 |
| 25      | 0.084        | 110            | 85.6 | 82.4 | 76.2 | 70.5 | 67.8 |
| 26      | 0.085        | 109            | 85.5 | 82.3 | 76.1 | 70.4 | 67.7 |
| 27      | 0.085        | 108            | 85.5 | 82.2 | 76.0 | 70.2 | 67.5 |
| 28      | 0.086        | 108            | 85.4 | 82.1 | 75.9 | 70.1 | 67.4 |
| 29      | 0.086        | 107            | 85.3 | 82.0 | 75.8 | 70.0 | 67.3 |
| 30      | 0.087        | 107            | 85.3 | 81.9 | 75.6 | 69.8 | 67.1 |
| 31      | 0.087        | 106            | 85.2 | 81.8 | 75.5 | 69.7 | 67.0 |
| 32      | 0.088        | 106            | 85.1 | 81.7 | 75.4 | 69.6 | 66.8 |
| 33      | 0.088        | 105            | 85.0 | 81.7 | 75.3 | 69.4 | 66.7 |
| 34      | 0.088        | 105            | 85.0 | 81.6 | 75.2 | 69.3 | 66.5 |
| 35      | 0.089        | 104            | 84.9 | 81.5 | 75.1 | 69.2 | 66.4 |
| 36      | 0.089        | 104            | 84.8 | 81.4 | 75.0 | 69.1 | 66.3 |
| 37      | 0.090        | 103            | 84.8 | 81.3 | 74.9 | 68.9 | 66.1 |
| 38      | 0.090        | 102            | 84.7 | 81.2 | 74.8 | 68.8 | 66.0 |
| 39      | 0.091        | 102            | 84.6 | 81.2 | 74.7 | 68.7 | 65.9 |
| 40      | 0.091        | 102            | 84.6 | 81.1 | 74.6 | 68.6 | 65.7 |
| 41      | 0.092        | 101            | 84.5 | 81.0 | 74.5 | 68.4 | 65.6 |
| 42      | 0.092        | 101            | 84.4 | 80.9 | 74.3 | 68.3 | 65.5 |
| 43      | 0.092        | 100            | 84.4 | 80.8 | 74.2 | 68.2 | 65.3 |
| 44      | 0.093        | 100            | 84.3 | 80.8 | 74.1 | 68.1 | 65.2 |
| 45      | 0.093        | 99             | 84.2 | 80.7 | 74.0 | 67.9 | 65.1 |
| 46      | 0.094        | 99             | 84.2 | 80.6 | 73.9 | 67.8 | 65.0 |
| 47      | 0.094        | 98             | 84.1 | 80.5 | 73.8 | 67.7 | 64.8 |
| 48      | 0.095        | 98             | 84.0 | 80.4 | 73.7 | 67.6 | 64.7 |
| 49      | 0.095        | 97             | 84.0 | 80.4 | 73.6 | 67.5 | 64.6 |
| 50      | 0.095        | 97             | 83.9 | 80.3 | 73.5 | 67.4 | 64.5 |
| 51      | 0.096        | 97             | 83.8 | 80.2 | 73.4 | 67.2 | 64.3 |
| 52      | 0.096        | 96             | 83.8 | 80.1 | 73.3 | 67.1 | 64.2 |





**Rectangular Waveguide** - pages 32-40 for High Power-High Efficiency UHF Applications

Dielectric has been a major supplier of large high-power waveguide to the microwave industry for the past two decades. This experience has resulted in design, manufacturing, and testing techniques that represent the current state of the art.

## THE HIGH POWER ALTERNATIVE

Each form of transmission line has certain features which make its use more advantageous over other types of transmission systems. For UHF television applications, waveguide is particularly attractive because it out performs coaxial transmission line in virtually every area of importance.

Waveguide can handle power levels far in excess of coaxial line ratings.

Because there is no center conductor, waveguide is much less susceptible to shock and vibration during shipping and installation. No center conductor means no insulators and consequently lower loss.

## COMPLETE SYSTEMS

Dielectric's product line includes not only individual waveguide components and accessories, but integrated waveguide feed systems as well. Typical feed systems include such items as straight waveguide, sweeps and elbows, mitre bends, twists, switches, couplers, and other components as required for a specific application. In order to provide system compatibility, each component must be manufactured with stringent electrical and mechanical controls.

## QUALITY MANUFACTURING

Extreme care is taken to ensure a superior surface finish on the flanges. Flange flatness tolerances do not exceed a total deviation over 5 to 10 mils on a flange face. Deviations exceeding these dimensional tolerances can result in serious arcing at the flange junction in a high power system.

Another unique process welds the flanges in a manner that prevents localized distortion, thus minimizing the periodic VSWR spike that is often characteristic of transmission line systems. Facing the flanges, after welding, ensures accurate parallelism, thus minimizing interface discontinuities.

## PRECISION WELDING

Dielectric's waveguide is spayarc argon® welded by unique techniques using precision tooling and fixtures. These techniques eliminate distortion and bow by maintaining uniform stress loading and uniform weld penetration. Consequently, mechanical stability is attained and performance degradation of the guide with aging is eliminated. This is extremely important in long waveguide runs where low VSWR is necessary.

## Pressurization Systems

Rectangular waveguide, by the nature of its shape and relatively thin walls, is not conducive to high pressurization; but a slight positive pressure in any transmission line system is necessary to prevent condensation during temperature change.

The guide must not be over-pressurized because the walls will be deformed, causing excessive VSWR or a ruptured waveguide window.

## LPB-100 Standby System

The LPB-100 is a standby system designed to prevent negative pressure in large volume waveguide runs due to rapid temperature change.

As this rate of change is often much too great for the primary compressor/dehydrator to supply, a pressure switch starts the LPB-100 blower, rapidly supplying a very large volume of dry air through a cylinder containing molecular sieve type desiccant. When the pressure is stabilized, the LPB-100 returns to standby, with its desiccant tower regenerated by a small flow of dry air from the primary compressor/dehydrator.

## Gas Dump

Because of the large volume of air and large surface of the guide, a rapid change of ambient temperature can cause a relatively fast change in the internal pressure. The extra pressure must be bled off rapidly and this is accomplished by the gas dump. The gas dump consists of a precisely weighted cap over an opening in the guide. The cap "pops" off at the maximum pressure for which the guide is designed. When the guide cools, the automatic dehydrator must have sufficient capacity to replace the air in a short time.

The physical parameters of the rectangular waveguide determine the electrical operating characteristics. The dimension of the "broad wall" determines the frequency range of operation.

The dimension of the narrow wall sets the breakdown voltage of the waveguide and therefore the peak power handling capability. It should be noted that as this dimension decreases, transfer efficiency decreases.

The ratio between the broad and narrow wall recommended by the Electronics Industries Association is 2:1. This combination yields a favorable compromise between electrical and mechanical properties and has been utilized extensively by the broadcast industry.

For special applications, Dielectric offers a complete line of rectangular waveguide components including sidewall couplers, directional couplers, folded tees (magic tees), phase shifters, special sweeps and elbows, special waveguide lengths, and half height waveguide.

## Rectangular Waveguide Parameters

| Waveguide Designation | Inside Dimensions | Inside Dimension Tolerance | Outside Dimensions | Wall Thickness | Recommended Operating Range (Megahertz) | Max. Pressure |
|-----------------------|-------------------|----------------------------|--------------------|----------------|---|---------------|
| WR 1800               | 18.00" x 9.00"    | ± .020"                    | 18.375" x 9.375"   | .190"          | 470-602                                 | 0.25 PSIG     |
| WR 1500               | 15.00" x 7.50"    | ± .015"                    | 15.250" x 7.750"   | .125"          | 506-728                                 | 0.25 PSIG     |
| WR 1150               | 11.50" x 5.75"    | ± .015"                    | 11.750" x 6.000"   | .125"          | 662-806                                 | 0.50 PSIG     |

## General Specifications

### Operating Temperature Range:

-40 Deg. C to +52 Deg. C

### Humidity:

Up to 100% R.H. Including condensate and rain.

### Altitude:

0 to 10,000 feet A.M.S.L. S.T.P.

### Nominal VSWR (without tuning):

1.1:1 for standard waveguide line run.

## Recommended Line Lengths Section Length vs VSWR

| Channel | WR 1800  | WR 1500  | WR 1150  |
|---------|----------|----------|----------|
| 14      | 143 5/8" |          |          |
| 15      | 143 5/8" |          |          |
| 16      | 143 5/8" |          |          |
| 17      | 138"     |          |          |
| 18      | 138"     | 143 5/8" |          |
| 19      | 143 5/8" | 143 5/8" |          |
| 20      | 143 5/8" | 138"     |          |
| 21      | 143 5/8" | 138"     |          |
| 22      | 138"     | 143 5/8" |          |
| 23      | 138"     | 143 5/8" |          |
| 24      | 143 5/8" | 143 5/8" |          |
| 25      | 143 5/8" | 138"     |          |
| 26      | 143 5/8" | 138"     |          |
| 27      | 143 5/8" | 143 5/8" |          |
| 28      | 138"     | 143 5/8" |          |
| 29      | 138"     | 143 5/8" |          |
| 30      | 143 5/8" | 138"     |          |
| 31      | 143 5/8" | 138"     |          |
| 32      | 143 5/8" | 143 5/8" |          |
| 33      | 138"     | 143 5/8" |          |
| 34      | 138"     | 143 5/8" |          |
| 35      | 143 5/8" | 138"     |          |
| 36      |          | 138"     |          |
| 37      |          | 143 5/8" |          |
| 38      |          | 143 5/8" |          |
| 39      |          | 143 5/8" |          |
| 40      |          | 138"     |          |
| 41      |          | 138"     |          |
| 42      |          | 143 5/8" |          |
| 43      |          | 143 5/8" |          |
| 44      |          | 143 5/8" | 138"     |
| 45      |          | 138"     | 138"     |
| 46      |          | 138"     | 143 5/8" |
| 47      |          | 143 5/8" | 143 5/8" |
| 48      |          | 143 5/8" | 143 5/8" |
| 49      |          | 143 5/8" | 138"     |
| 50      |          | 143 5/8" | 138"     |
| 51      |          | 138"     | 143 5/8" |
| 52      |          | 138"     | 143 5/8" |
| 53      |          | 143 5/8" | 138"     |
| 54      |          | 143 5/8" | 138"     |
| 55      |          | 143 5/8" | 143 5/8" |
| 56      |          | 143 5/8" | 143 5/8" |
| 57      |          |          | 143 5/8" |
| 58      |          |          | 138"     |
| 59      |          |          | 138"     |
| 60      |          |          | 143 5/8" |
| 61      |          |          | 143 5/8" |
| 62      |          |          | 143 5/8" |
| 63      |          |          | 138"     |
| 64      |          |          | 138"     |
| 65      |          |          | 138"     |
| 66      |          |          | 143 5/8" |
| 67      |          |          | 143 5/8" |
| 68      |          |          | 138"     |
| 69      |          |          | 138"     |

Waveguide, similar to standard rigid coaxial line, requires selection of a proper length for a given channel to obtain a system with low VSWR. The table to the left is provided for proper length selection.

### Combining Channels

When combining channels into waveguide both the size and length must be evaluated to obtain low VSWR. The tables at left and below list recommended and prohibited standard line lengths by waveguide size and channel. For specific applications special designs may be available. Contact Dielectric for more information.

### Broadband Systems

In specific applications Dielectric has the ability to design broadband systems to combine two or more UHF channels into a single waveguide run. Contact Dielectric for more information.

### Prohibited Line Lengths

(size vs. length vs. channel)

| WR 1800 |  |  |
|---------|--|--|
| 11.5'   |  | 14, 15, 19, 20, 25, 26, 30, 31, 36, 37, 42, 43, 48, 49                                 |
| 11.75'  |  | 14, 18, 19, 23, 24, 29, 30, 35, 36, 41, 42, 47, 48                                     |
| 11.95'  |  | 17, 18, 22, 23, 28, 29, 33, 34, 39, 40, 45, 46, 51, 52                                 |
| WR 1500 |  |  |
| 11.5'   |  | 14, 17, 18, 22, 23, 26, 27, 32, 33, 37, 38, 43, 44, 48, 49, 54, 55, 60, 61, 66, 67     |
| 11.75'  |  | 14, 17, 18, 21, 22, 26, 27, 30, 31, 36, 37, 41, 42, 47, 48, 52, 53, 58, 59, 64, 65     |
| 11.95'  |  | 16, 17, 20, 21, 25, 26, 30, 31, 35, 36, 40, 41, 45, 46, 51, 52, 57, 58, 62, 63, 68, 69 |
| WR 1150 |  |  |
| 11.5'   |  | 38, 39, 42, 43, 46, 47, 51, 52, 56, 57, 61, 62, 66, 67                                 |
| 11.75'  |  | 37, 38, 41, 42, 45, 46, 50, 51, 54, 55, 59, 60, 65, 66                                 |
| 11.95'  |  | 40, 41, 44, 45, 49, 50, 53, 54, 58, 59, 63, 64, 68, 69                                 |

### Minimum Horizontal Run Length vs. Height

| Waveguide Size | Vertical Run in Feet | Minimum Required Horizontal Run Length |
|----------------|----------------------|--|
| WR 1800        | 1800-2000            | 120 FT.                                |
|                | 1200-1800            | 106 FT.                                |
|                | 900-1200             | 96 FT.                                 |
|                | 500-900              | 84 FT.                                 |
|                | 400-500              | 72 FT.                                 |
| WR 1500        | 1400-2000            | 84 FT.                                 |
|                | 800-1400             | 72 FT.                                 |
|                | 400-800              | 60 FT.                                 |
| WR 1150        | 1800-2000            | 72 FT.                                 |
|                | 900-1800             | 60 FT.                                 |
|                | 400-900              | 48 FT.                                 |

**Note:** 11.75' (141") lengths can be used for multiple channel applications.

= Recommended  
 = Acceptable   
  = Not Recommended



## System Worksheet

### 1. GAS BARRIER (500XX-13)

Located before the gas dump section inside the transmitter building. If the elbow complex at the top of the vertical run is coax, an additional Gas Barrier may be required.

### 2. GAS DUMP SECTION (500XX-18)

Located horizontally with the gas dump hanging downward. Valve is set to protect the guide from high pressure

### 3. WALL ANCHOR PLATE (500XX-2)

Used to anchor the horizontal run of waveguide to the transmitter building wall. A second one may be used on the interior building wall for aesthetic purposes.

### 4. RECTANGULAR WAVEGUIDE STRAIGHT SECTIONS (500XX-10)

Bolted together end to end with the seal always facing toward the antenna, allowing observation of the contact surface and seal during installation. Section length dependent upon channel.

### 5. SWEEP ELBOWS (500XX-8)

Used anywhere a 90° bend is required. One is normally used to connect the bottom of the vertical run to the horizontal run. Where space is limited a mitre elbow may be substituted.

### 6. TUNER SECTIONS (500XX-21)

As a rule of thumb, one tuner may be placed as close to the building as practical, one at the tower base elbow (vertically is preferred), one at the tower top, just below the cut length and the remainder equally spaced between the top and the bottom tuners in the vertical run.

### 7. LOWER VERTICAL HANGER LATERAL SUPPORT (500XX-40)

Allows the horizontal run to expand and contract under normal temperature changes. Normally only three of these are required and will be positioned in place of the bottom three (3) vertical spring hangers. The distance from the centerline of the guide to the mounting surface is 2.50" greater than the standard vertical spring hanger.

### 8. VERTICAL SPRING HANGERS (500XX-41)

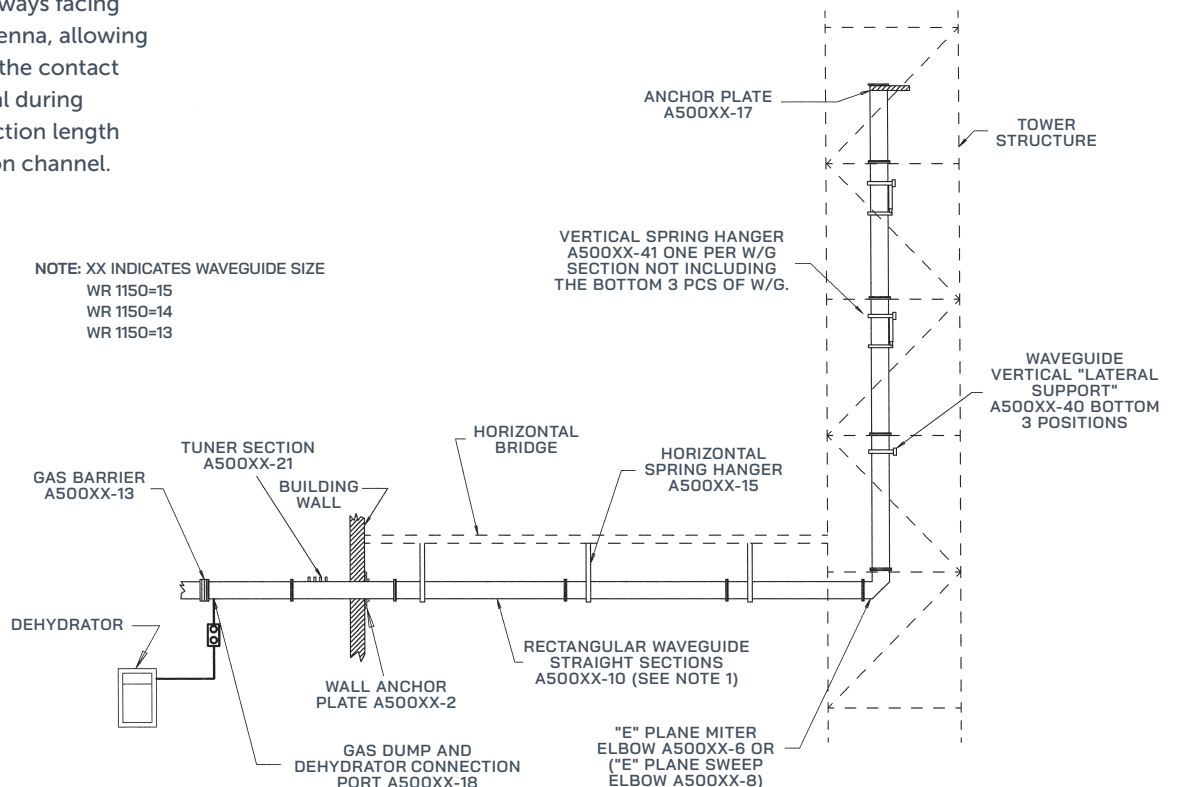
These hangers are to be spaced approximately 12 feet apart (one per waveguide section), other than the vertical lateral supports all hangers in the vertical run are the same.

### 9. TOWER TOP ANCHOR PLATE (500XX-17)

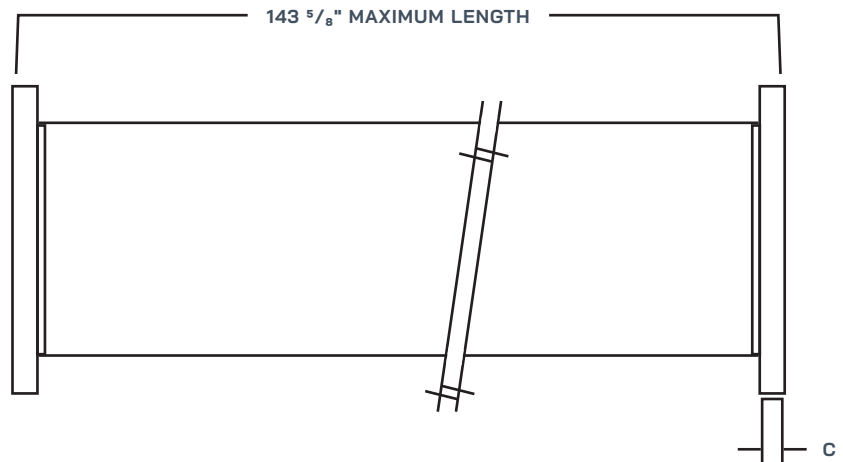
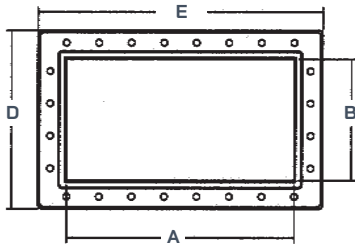
Designed to fix the vertical run to the tower top.

### 10. HORIZONTAL SPRING HANGERS (500XX-15)

Supports the horizontal run while allowing for vertical movement due to the expansion of the vertical run. One is required for each full length section of waveguide and should be placed near the center of each section.



### Straight Flanged Waveguide



| Waveguide Size | Catalog Number | Freq. Range MHz | A      | B     | C    | D      | E      | Wall Thickness | Max Pressure PSIG | Net Weight/Ft Unflanged |
|----------------|----------------|-----------------|--------|-------|------|--------|--------|----------------|-------------------|-------------------------|
| WR 1800        | 50013-10       | 410-620         | 18.00" | 9.00" | 5/8" | 12.50" | 21.50" | .190"          | 0.25              | 12 lbs                  |
| WR 1500        | 50014-10       | 490-750         | 15.00" | 7.50" | 5/8" | 11.00" | 18.50" | .125"          | 0.25              | 7 lbs                   |
| WR 1150        | 50015-10       | 640-960         | 11.50" | 5.75" | 5/8" | 9.25"  | 15.00" | .125"          | 0.50              | 5 lbs                   |

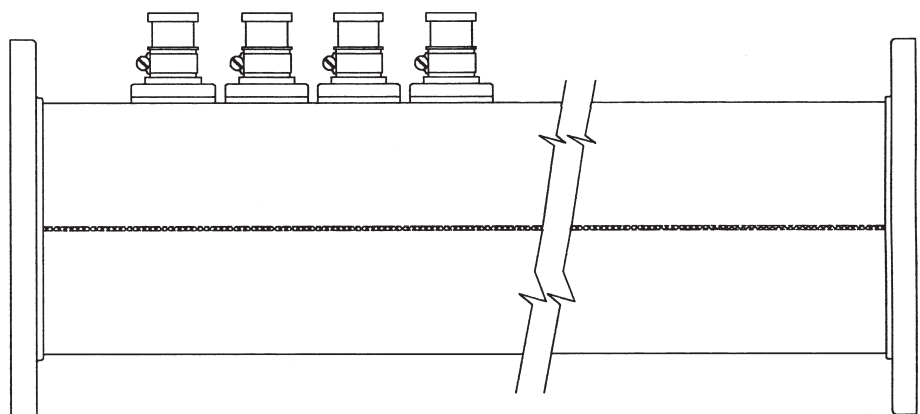
**Note:** Hardware kits are ordered separately.

### VSWR Tuning Sections

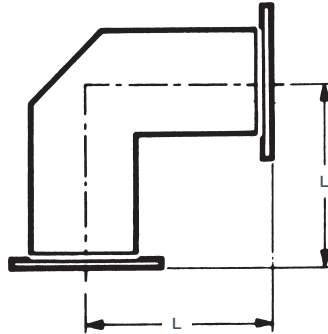
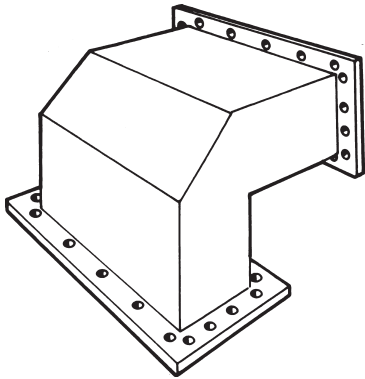
As manufactured, Dielectric Waveguide has a VSWR of 1.1. With on-site tuning, a VSWR of 1.05 is obtainable.

Tuner sections are the same length as standard sections.

The use and quantity of tuning sections required will be determined at time of order.

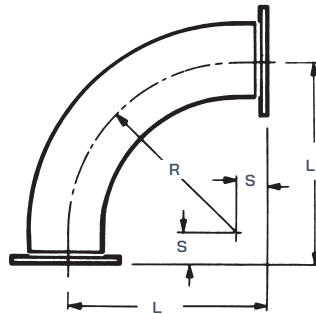
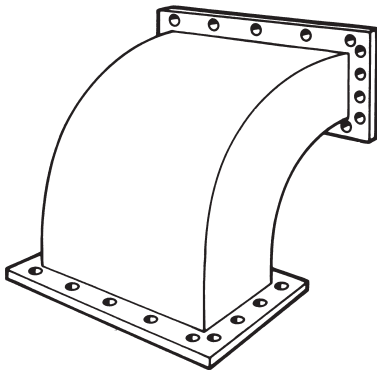


| Waveguide Size | Catalog Number |
|----------------|----------------|
| WR 1800        | 50013-21       |
| WR 1500        | 50014-21       |
| WR 1150        | 50015-21       |



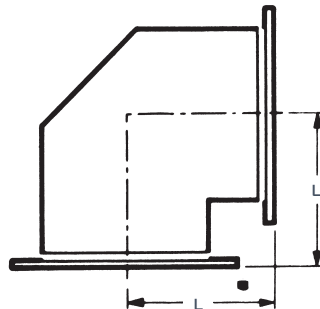
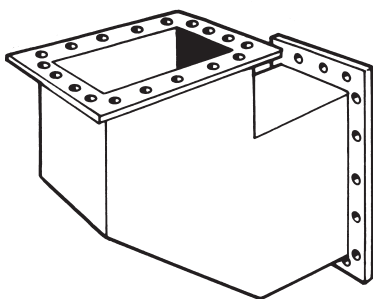
**90° "E" Plane Mitre Bend**

| Waveguide Size | Catalog Number | L   |
|----------------|----------------|-----|
| WR 1800        | 50013-6        | 12" |
| WR 1500        | 50014-6        | 9"  |
| WR 1150        | 50015-6        | 9"  |



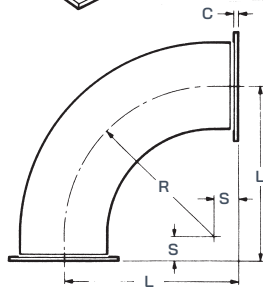
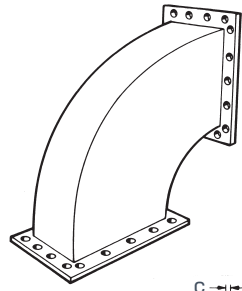
**90° "E" Plane Sweep Bends**

| Waveguide Size | Catalog Number | L   | R   | S  |
|----------------|----------------|-----|-----|----|
| WR 1800        | 50013-8        | 21" | 18" | 3" |
| WR 1500        | 50014-8        | 15" | 12" | 3" |
| WR 1150        | 50015-8        | 15" | 12" | 3" |



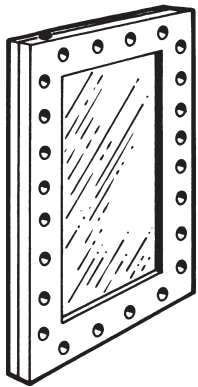
**90° "H" Plane Mitre Bend**

| Waveguide Size | Catalog Number | L   |
|----------------|----------------|-----|
| WR 1800        | 50013-5        | 18" |
| WR 1500        | 50014-5        | 12" |
| WR 1150        | 50015-5        | 12" |



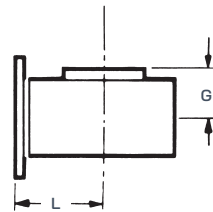
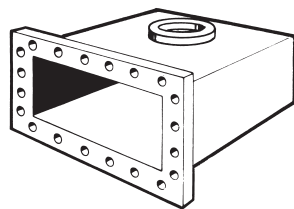
**90° "H" Plane Sweep Bends**

| Waveguide Size | Catalog Number | Freq. Range GHz | L   | R   | S  |
|----------------|----------------|-----------------|-----|-----|----|
| WR 1800        | 50013-7        | 0.41-0.62       | 39" | 36" | 3" |
| WR 1500        | 50014-7        | 0.49-0.75       | 33" | 30" | 3" |
| WR 1150        | 50015-7        | 0.64-0.96       | 27" | 24" | 3" |



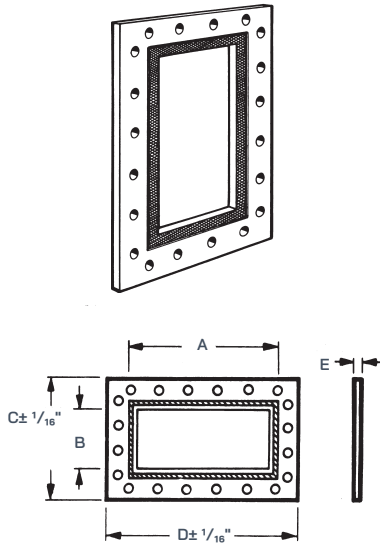
**Waveguide Gas Barrier**

| Waveguide Size | Catalog Number | C     | Gas Port Thread |
|----------------|----------------|-------|-----------------|
| WR 1800        | 50013-13       | 1.38" | 1/4" NPT        |
| WR 1500        | 50014-13       | 1.38" | 1/4" NPT        |
| WR 1150        | 50015-13       | 1.38" | 1/4" NPT        |



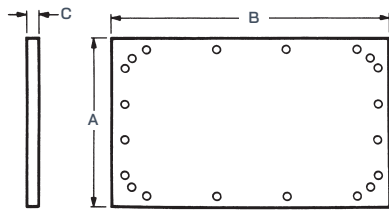
**Waveguide to Coax Transitions**

| Waveguide Pressure Size | Catalog Number |           |            |        | G      |         |        | L      |         | Max PSIG |
|-------------------------|----------------|-----------|------------|--------|--------|---------|--------|--------|---------|----------|
|                         | 3 1/8 EIA      | 6 1/8 EIA | 8 3/16 EIA | 3 1/8" | 6 1/8" | 8 3/16" | 3 1/8" | 6 1/8" | 8 3/16" |          |
| WR 1800                 | 50013-23       | 50013-22  | 50013-24   | 5.56"  | 5.96"  | 5.62"   | 6"     | 6"     | 10"     | 0.25"    |
| WR 1500                 | 50014-23       | 50014-22  | 50014-24   | 4.81"  | 4.94"  | 4.88"   | 6"     | 6"     | 10"     | 0.25"    |
| WR 1150                 | 50015-23       | 50015-22  | 50015-24   | 3.94"  | 4.06"  | 4.00"   | 6"     | 6"     | 10"     | 0.50"    |



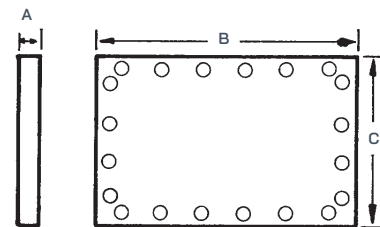
**Waveguide Flange Seals**

| Waveguide Size | Catalog Number | Freq. Range GHz | A      | B     | C      | D      | E    |
|----------------|----------------|-----------------|--------|-------|--------|--------|------|
| WR 1800        | 50013-9        | 0.41-0.62       | 18.00" | 9.00" | 12.50" | 2.50"  | 1/8" |
| WR 1500        | 50014-9        | 0.49-0.75       | 15.00" | 7.50" | 11.00" | 18.50" | 1/8" |
| WR 1150        | 50015-9        | 0.64-0.96       | 11.50" | 5.75" | 9.25"  | 15.00" | 1/8" |



**Shorting Plate**

| Waveguide Size | Catalog Number | A      | B      | C     |
|----------------|----------------|--------|--------|-------|
| WR 1800        | 50013-1        | 12.50" | 21.50" | .250" |
| WR 1500        | 50014-1        | 11.00" | 18.50" | .250" |
| WR 1150        | 50015-1        | 9.25"  | 15.00" | .250" |

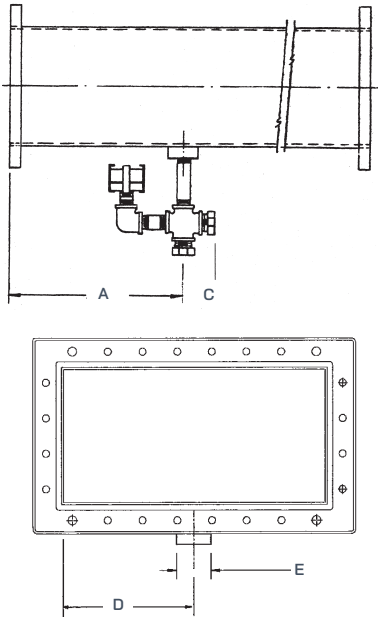


**Cover Plate—Fiber**

| Waveguide Size | Catalog Number | A      | B      | C      |
|----------------|----------------|--------|--------|--------|
| WR 1800        | 50013-28       | 0.250" | 12.50" | 21.50" |
| WR 1500        | 50014-28       | 0.250" | 11.50" | 18.50" |
| WR 1150        | 50015-28       | 0.250" | 9.25"  | 15.00" |

**Alignment Pins**

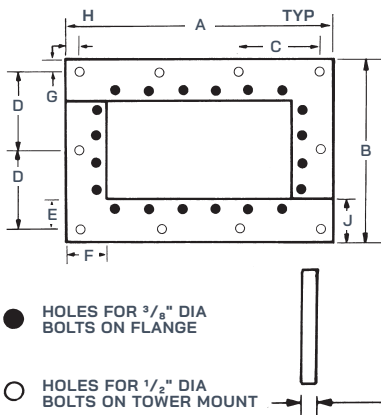
| Waveguide Size | Catalog Number |
|----------------|----------------|
| WR 1800        | 50013-30       |
| WR 1500        | 50014-30       |
| WR 1150        | 50015-30       |



**Gas Dump Section**

| Waveguide Size | Catalog Number | A      | C     | D     | E     |
|----------------|----------------|--------|-------|-------|-------|
| WR 1800        | 50013-18       | 12.00" | 4.00" | 9.19" | 2.00" |
| WR 1500        | 50014-18       | 12.00" | 4.00" | 7.62" | 2.00" |
| WR 1150        | 50015-18       | 12.00" | 4.00" | 5.88" | 2.00" |

Note: Overall length dictated by Channel. Contact factory.



**Anchor Plate—Tower Top**

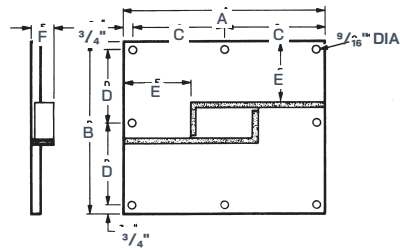
| Waveguide Size | Catalog Number | A      | B      | C     | D     | E     | F     | J     |
|----------------|----------------|--------|--------|-------|-------|-------|-------|-------|
| WR 1800        | 50013-17       | 28.00" | 18.00" | 8.66" | 8.00" | 3.00" | 4.50" | 4.00" |
| WR 1500        | 50014-17       | 25.00" | 16.50" | 7.66" | 7.25" | 3.00" | 4.50" | 4.00" |
| WR 1150        | 50015-17       | 21.50" | 14.75" | 6.50" | 6.38" | 3.00" | 4.50" | 4.00" |

G & H = 1.00" (all sizes)  
I = .625 (all sizes)

**Hardware Kits**

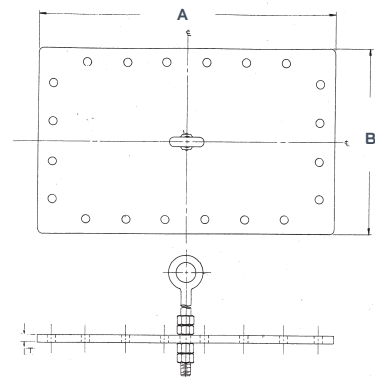
| Waveguide Size | Catalog Number |
|----------------|----------------|
| WR 1800        | 50013-12       |
| WR 1500        | 50014-12       |
| WR 1150        | 50015-12       |

Contains enough hardware for one standard joint.



**Wall Anchor Plate**

| Waveguide Size | Catalog Number | A      | B      | C      | D     | E     | F  |
|----------------|----------------|--------|--------|--------|-------|-------|----|
| WR 1800        | 50013-2        | 30.25" | 21.25" | 14.38" | 9.88" | 5.44" | 2" |
| WR 1500        | 50014-2        | 27.25" | 19.75" | 12.88" | 9.13" | 5.50" | 2" |
| WR 1150        | 50015-2        | 23.75" | 18.00" | 11.13" | 8.25" | 5.56" | 2" |

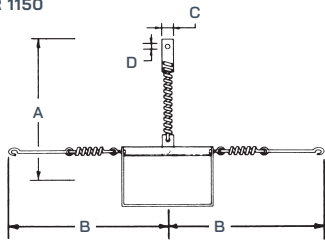


**Lifting Plate**

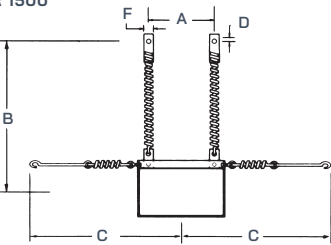
| Waveguide Size | Catalog Number | A      | B      | T    |
|----------------|----------------|--------|--------|------|
| WR 1800        | 50013-16       | 21.50" | 12.50" | .38" |
| WR 1500        | 50014-16       | 18.50" | 11.00" | .38" |
| WR 1150        | 50015-16       | 15.00" | 9.25"  | .38" |

RECTANGULAR WAVEGUIDE

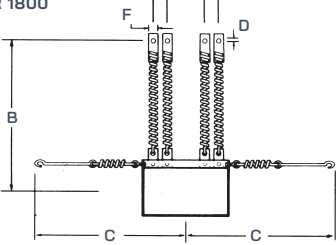
WR 1150



WR 1500



WR 1800

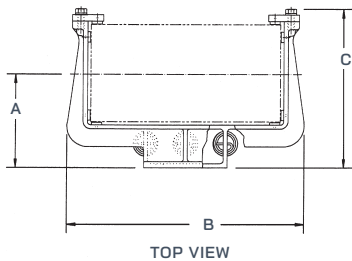


### Horizontal Spring Hangers

Space one per Waveguide length

| Waveguide Size | Catalog Number | A      | B      | C      | D    | E     | F      |
|----------------|----------------|--------|--------|--------|------|-------|--------|
| WR 1800        | 50013-15       | 10.50" | 27.44" | 23.50" | .56" | 1.50" | 1.125" |
| WR 1500        | 50014-15       | 11.00" | 30.63" | 25.00" | .64" | —     | 2.50"  |
| WR 1150        | 50015-15       | 41.00" | 23.50" | 2.50"  | .64" | —     | 2.50"  |

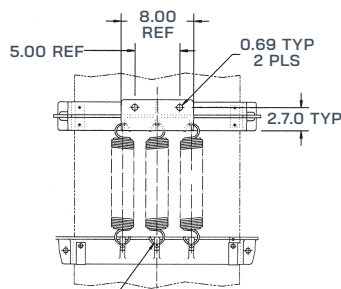
Dimensions are for installed Waveguide.



### Vertical Spring Hangers

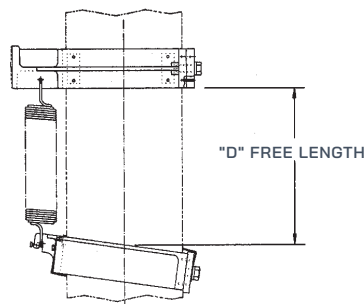
| Waveguide Size | Catalog Number | A     | B      | C      | D      |
|----------------|----------------|-------|--------|--------|--------|
| WR 1800        | 50013-41       | 9.07" | 23.00" | 15.33" | 13.00" |
| WR 1500        | 50014-41       | 7.38" | 20.00" | 12.83" | 10.95" |
| WR 1150        | 50015-41       | 6.50" | 16.38" | 11.02" | 9.60"  |

For spring tension charts, refer to installation guide.



THIS SPRING IS USED ON WR1800 ONLY

BACK VIEW



SIDE VIEW



### Horizontal Fixed Hangers

**Material:** Strap-aluminum  
Cushion-neoprene

**Finish:** Irridite

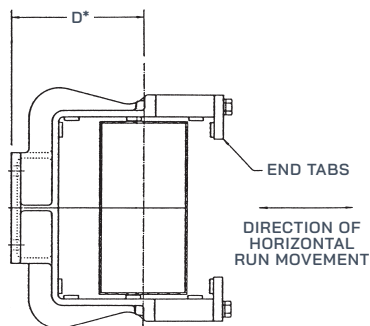
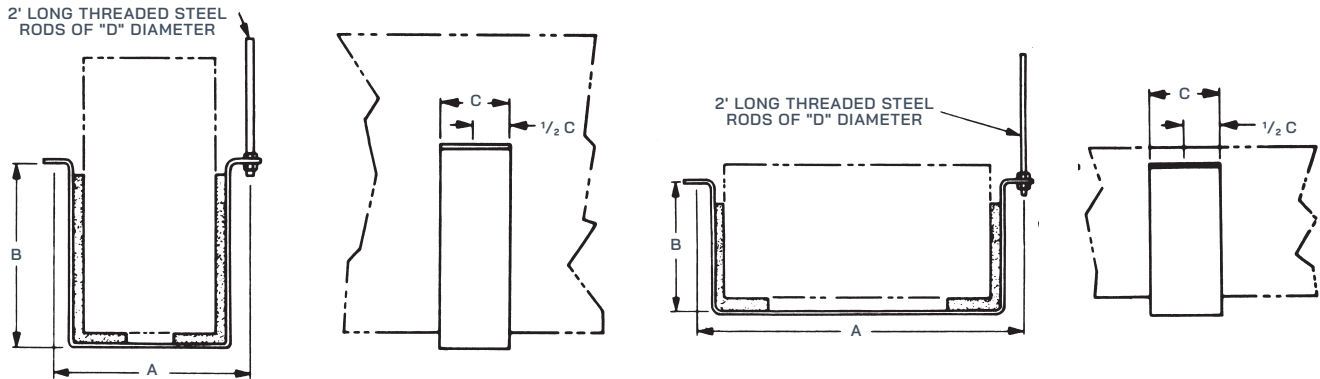
Fixed Hangers are used before Flex Section on horizontal runs. See tower layout page for Hanger location.

### "H" Plane Waveguide Hangers

| Waveguide Size | Catalog Number | A      | B      | C     | D    |
|----------------|----------------|--------|--------|-------|------|
| WR 1800        | 50013-4        | 12.50" | 12.00" | 3.00" | .50" |
| WR 1500        | 50014-4        | 11.00" | 9.50"  | 3.00" | .50" |
| WR 1150        | 50015-4        | 9.25"  | 7.50"  | 3.00" | .50" |

### "E" Plane Waveguide Hangers

|         |         |        |       |       |      |
|---------|---------|--------|-------|-------|------|
| WR 1800 | 50013-3 | 21.38" | 7.00" | 3.00" | .50" |
| WR 1500 | 50014-3 | 18.38" | 5.75" | 3.00" | .50" |
| WR 1150 | 50015-3 | 14.25" | 4.50" | 3.00" | .50" |



### Vertical Lateral Support

| Waveguide Size | Catalog Number | D      |
|----------------|----------------|--------|
| WR 1800        | 50013-40       | 11.63" |
| WR 1500        | 50014-40       | 9.88"  |
| WR 1150        | 50015-40       | 9.00"  |

\*VERTICAL MEDIAN CENTER LINE. BOTTOM (3) HANGERS ONLY. ("D") SEE INSTALLATION GUIDE.

FOR MOUNTING SURFACE DIMENSIONS REFER TO VERTICAL SPRING HANGER.

**WR1800 (Channels 14 through 34)**

| Channel | Visual Carrier | dB/100<br>1100 alloy<br>WR 1800 | Efficiency (%) Total Length in Feet |      |      |      |      |      |
|---------|----------------|---------------------------------|-------------------------------------|------|------|------|------|------|
|         |                |                                 | 200                                 | 600  | 1000 | 1200 | 1600 | 2000 |
| 14      | 471.25         | 0.046                           | 97.9                                | 93.9 | 90.0 | 88.1 | 84.5 | 81.0 |
| 16      | 483.25         | 0.045                           | 98.0                                | 94.0 | 90.2 | 88.4 | 84.8 | 81.4 |
| 18      | 495.25         | 0.044                           | 98.0                                | 94.2 | 90.4 | 88.7 | 85.2 | 81.8 |
| 20      | 507.25         | 0.043                           | 98.0                                | 94.3 | 90.6 | 88.8 | 85.4 | 82.1 |
| 22      | 519.25         | 0.042                           | 98.1                                | 94.4 | 90.8 | 89.0 | 85.7 | 82.4 |
| 24      | 531.25         | 0.041                           | 98.1                                | 94.4 | 90.9 | 89.2 | 85.9 | 82.6 |
| 26      | 543.25         | 0.041                           | 98.1                                | 94.5 | 91.0 | 89.3 | 86.0 | 82.9 |
| 28      | 555.25         | 0.040                           | 98.2                                | 94.6 | 91.1 | 89.5 | 86.2 | 83.1 |
| 30      | 567.25         | 0.040                           | 98.2                                | 94.6 | 91.2 | 89.6 | 86.4 | 83.3 |
| 32      | 579.25         | 0.040                           | 98.2                                | 94.7 | 91.3 | 89.7 | 86.5 | 83.4 |
| 34      | 591.25         | 0.039                           | 98.2                                | 94.7 | 91.4 | 89.7 | 86.6 | 83.5 |

**WR1500 (Channels 20 through 56)**

| Channel | Visual Carrier | dB/100<br>1100 alloy<br>WR 1500 | Efficiency (%) Total Length in Feet |      |      |      |      |      |
|---------|----------------|---------------------------------|-------------------------------------|------|------|------|------|------|
|         |                |                                 | 200                                 | 600  | 1000 | 1200 | 1600 | 2000 |
| 20      | 507.25         | 0.070                           | 96.8                                | 90.8 | 85.2 | 82.5 | 77.3 | 72.5 |
| 22      | 519.25         | 0.067                           | 97.0                                | 91.1 | 85.7 | 83.1 | 78.1 | 73.4 |
| 24      | 531.25         | 0.065                           | 97.1                                | 91.4 | 86.1 | 83.6 | 78.7 | 74.1 |
| 26      | 543.25         | 0.063                           | 97.1                                | 91.7 | 86.5 | 84.0 | 79.3 | 74.8 |
| 28      | 555.25         | 0.062                           | 97.2                                | 91.9 | 86.8 | 84.4 | 79.7 | 75.3 |
| 30      | 567.25         | 0.060                           | 97.3                                | 92.0 | 87.1 | 84.7 | 80.2 | 75.9 |
| 32      | 579.25         | 0.059                           | 97.3                                | 92.2 | 87.3 | 85.0 | 80.5 | 76.3 |
| 34      | 591.25         | 0.058                           | 97.4                                | 92.4 | 87.6 | 85.3 | 80.9 | 76.7 |
| 36      | 603.25         | 0.057                           | 97.4                                | 92.5 | 87.8 | 85.5 | 81.1 | 77.0 |
| 38      | 615.25         | 0.056                           | 97.5                                | 92.6 | 87.9 | 85.7 | 81.4 | 77.3 |
| 40      | 627.27         | 0.055                           | 97.5                                | 92.7 | 88.1 | 85.9 | 81.7 | 77.6 |
| 42      | 639.25         | 0.054                           | 97.5                                | 92.8 | 88.2 | 86.1 | 81.9 | 77.9 |
| 44      | 651.25         | 0.054                           | 97.6                                | 92.8 | 88.4 | 86.2 | 82.1 | 78.1 |
| 46      | 663.25         | 0.053                           | 97.6                                | 92.9 | 88.5 | 86.4 | 82.2 | 78.3 |
| 48      | 675.25         | 0.053                           | 97.6                                | 93.0 | 88.6 | 86.5 | 82.4 | 78.5 |
| 50      | 687.25         | 0.052                           | 97.6                                | 93.1 | 88.7 | 86.6 | 82.5 | 78.7 |
| 52      | 699.25         | 0.052                           | 97.6                                | 93.1 | 88.8 | 86.7 | 82.6 | 78.8 |
| 54      | 711.25         | 0.051                           | 97.7                                | 93.1 | 88.8 | 86.8 | 82.7 | 78.9 |
| 56      | 723.25         | 0.051                           | 97.7                                | 93.2 | 88.9 | 86.8 | 82.8 | 79.0 |

**WR1150 (Channels 46 through 69)**

| Channel | Visual Carrier | dB/100<br>1100 alloy<br>WR 1150 | Efficiency (%) Total Length in Feet |      |      |      |      |      |
|---------|----------------|---------------------------------|-------------------------------------|------|------|------|------|------|
|         |                |                                 | 200                                 | 600  | 1000 | 1200 | 1600 | 2000 |
| 46      | 663.25         | 0.104                           | 95.3                                | 86.6 | 78.7 | 75.1 | 68.2 | 62.0 |
| 48      | 675.25         | 0.101                           | 95.5                                | 87.0 | 79.3 | 75.7 | 69.0 | 62.9 |
| 50      | 687.25         | 0.098                           | 95.6                                | 87.3 | 79.8 | 76.3 | 69.7 | 63.7 |
| 52      | 699.25         | 0.096                           | 95.7                                | 87.6 | 80.2 | 76.8 | 70.3 | 64.4 |
| 54      | 711.25         | 0.094                           | 95.8                                | 87.9 | 80.6 | 77.2 | 70.8 | 65.0 |
| 56      | 723.25         | 0.092                           | 95.9                                | 88.1 | 80.9 | 77.6 | 71.3 | 65.5 |
| 58      | 735.25         | 0.090                           | 95.9                                | 88.3 | 81.3 | 78.0 | 71.8 | 66.0 |
| 60      | 747.25         | 0.088                           | 96.0                                | 88.5 | 81.6 | 78.3 | 72.2 | 66.5 |
| 62      | 759.25         | 0.087                           | 96.1                                | 88.7 | 81.8 | 78.6 | 72.5 | 66.9 |
| 64      | 771.25         | 0.086                           | 96.1                                | 88.8 | 82.1 | 78.9 | 72.9 | 67.3 |
| 66      | 783.25         | 0.085                           | 96.2                                | 88.9 | 82.3 | 79.1 | 73.2 | 67.7 |
| 68      | 795.25         | 0.084                           | 96.2                                | 89.1 | 82.5 | 79.4 | 73.5 | 68.0 |
| 69      | 801.25         | 0.083                           | 96.2                                | 89.1 | 82.6 | 79.5 | 73.6 | 68.2 |



MODEL 600



MODEL 2400/3200

Dielectric's dehydrator products have been in service in the broadcast, microwave and telephone industries for over 60 years.

Dielectric's Models 600 and 850 provide a dry air source for a variety of small volume applications (see capacity chart below). These fully automatic, self-contained units are quiet and compact, making them the ideal choice for diverse applications. Adjustable system pressure allows for altitude compensation to assure peak efficiency at any elevation.

The Models 2400/3200 are fully enclosed systems providing quieter operation. All models incorporate five independent alarm circuits that can be monitored individually or as a single C.O. alarm. These units are designed to minimize maintenance time through modularized, field-replaceable subassemblies.

The waveguide dehydrator packages 50015-29, 50014-29 and 50013-29 come complete with everything necessary for a standard installation. The kits include a 2400 dehydrator, excess run alarm, special low-pressure regulator (high pressure output option also available), 20 feet of 3/4" hose and fittings necessary to pressurize your waveguide system.

## Air Dryers for Transmission Line

Transmission Line

Waveguide

| Model         | 1 5/8"    | 3 1/8"    | 4 1/16"   | 6 1/8"    | 7 3/16"   | 8 3/16"   | 9 3/16"   | WR 1150   | WR 1500   | 1WR 1800  | DTW 1350  | DTW 1500  | DTW 1750  |
|---------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|               | Ft (Mtrs) | Ft (Mtrs) | Ft (Mtrs) | Ft (Mtrs) | Ft (Mtrs) | Ft (Mtrs) | Ft (Mtrs) | Ft (Mtrs) | Ft (Mtrs) | Ft (Mtrs) | Ft (Mtrs) | Ft (Mtrs) | Ft (Mtrs) |
| 300 TLS       | 5000'     | 1650'     | 850'      |           |           |           |           |           |           |           |           |           |           |
| 66788         | (1525)    | (500)     | (260)     |           |           |           |           |           |           |           |           |           |           |
| 200C          | 5000'     | 1650'     | 850'      |           |           |           |           |           |           |           |           |           |           |
| 46345(115V)   | (1525)    | (500)     | (260)     |           |           |           |           |           |           |           |           |           |           |
| 600C          |           | *3500'    | 2100'     | 900'      | 750'      | 510'      |           | 800'      | 550'      | 480'      |           |           |           |
| 40627(115V)   |           | (1070)    | (640)     | (275)     | (230)     | (155)     |           | (250)     | (170)     | (150)     |           |           |           |
| 850C          | 5000'     | 3000'     | 1500'     | 1100'     | 740'      | 600'      | 1200'     | 800'      | 700'      | 480'      | 530'      | 465'      |           |
| 41016 (115V)  | (1525)    | (915)     | (460)     | (335)     | (225)     | (180)     | (365)     | (240)     | (210)     | (150)     | (160)     | (140)     |           |
| 2400 Portable |           |           | 3500'     | 2600'     | 1650'     | 1350'     |           |           | 2300'     | 1600'     | 1800'     | 1500'     | 1100'     |
| 49341         |           |           | (1065)    | (800)     | (500)     | (500)     |           |           | (700)     | (500)     | (550)     | (460)     | (335)     |
| 2400IM        |           |           | 3500'     | 2600'     | 2500'     | 2050'     |           |           | 2300'     | 1600'     | 1800'     | 1500'     | 1100'     |
| 47141         |           |           | (1065)    | (800)     | (760)     | (625)     |           |           | (700)     | (500)     | (550)     | (460)     | (335)     |
| 3200 Portable |           |           |           |           | 3250'     | 2650'     |           |           |           | 2080'     | 2340'     | 1950'     | 1400'     |
| 49344         |           |           |           |           | (990)     | (810)     |           |           |           | (635)     | (710)     | (595)     | (425)     |
| 3200IM        |           |           |           |           | 3250'     | 2650'     |           |           |           | 2080'     | 2340'     | 1950'     | 1400'     |
| 47144         |           |           |           |           | (990)     | (810)     |           |           |           | (635)     | (710)     | (595)     | (425)     |

"Use Model "D" for waveguide applications to provide low-pressure output.

ISOLATION > 60 dB



### Motorized Switches (60000 Series)

These switches are blade type SPDT or 4 port transfer switches. Sizes include 7/8" through 9 3/16". Switch position is indicated by a mechanical pointer and through auxiliary switches used for readout and interlocking circuits. In the closing mode, the interlock switches do not activate until the RF contacts are ready to accept full power. In the opening mode, the interlock switches open prior to the RF contacts to prevent the breaking of the RF contacts while under power. Manual operation is provided for by a knob. Terminations are standard EIA fixed flanges with non-removable male connectors. Control panels are available.

For more information refer to Dielectric's switch catalog.



### Coaxial Patch Panels

- High Isolation
- Low VSWR
- Sizes 1 5/8" through 8 3/16"
- 3, 4 or 7 port Standard
- Custom Types Available

Dielectric patch panels are a low cost reliable solution to multi-connection routing situations. Patch panels are available with or without interlocks. Bolt type (EIA) flanges are standard. Transitions to "no flange" or other line sizes are available. Dielectric can supply panels in custom configurations for special requirements.

For more information, refer to Dielectric's switch catalog.



### Lockout/Tagout Switch

The RF "Lockout/Tagout" Safety Switch prevents the accidental exposure of workers to RF energy. It acts as an isolation device preventing the flow of RF energy to the transmission line and antenna system. Complies with OSHA rule 1910.147.

#### Specifications

| Isolation                           | > 50 dB                     |
|-------------------------------------|-----------------------------|
| Insertion Loss (in Disengaged Mode) | < 0.03 dB @ 100 MHz         |
| Characteristic Impedance            | 50 or 75 Ohms               |
| Power Rating                        | Equal to Specific Line Size |
| RF Connections                      | 7/8" to 6 1/8" EIA Flanged  |
| Frequency Range                     | 300 KHz to 1 GHz            |
| VSWR (in Disengaged Mode)           | < 1.05:1.0                  |

**1 5/8", 3 1/8", 4 1/6",  
6 1/8", 7 3/16", 8 3/16",  
9 3/16"**

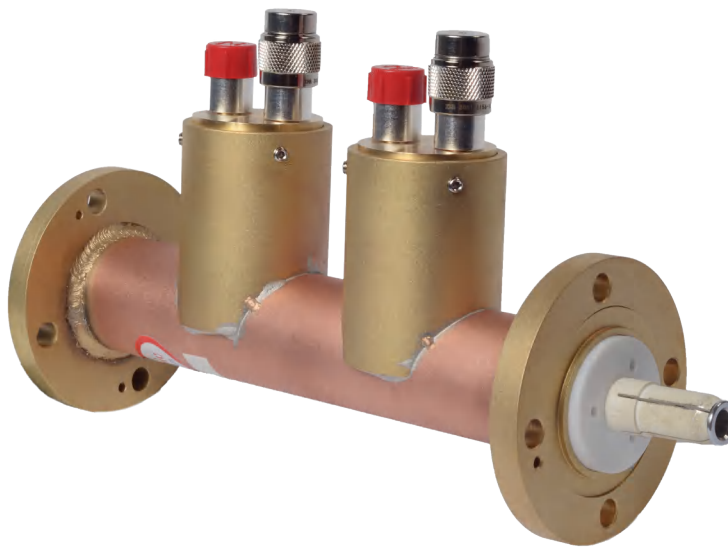
- Low VSWR
- 30 dB Directivity or Greater
- Type N Output
- Field Replaceable Resistor

Dielectric VHF/UHF Directional Couplers are designed to couple signals from a transmission line to external monitoring equipment for tuning, operating, and maintaining the station. By installing several couplers in the output transmission line, it is possible to monitor parameters including: VSWR, RF line power, system losses, sideband response, and filter performance.

The directional characteristic of the coupler permits sampling of the transmitter output line without any of the inherent variations in frequency response obtained with non-directional couplers. The voltages obtained with a directional coupler in the line are a sample of either the incident or reflected wave. The directional coupler provides a source impedance to the RF coaxial cable equal to the characteristic impedance of the cable.

These directional couplers are designed for mounting on any section of transmission line with an impedance of 50 or 75 ohms. Coupling is electromagnetic with directivity of 30 dB or better, and is accomplished with a coupling loop inserted into the fields of the main output line. Etched angle and penetration scales on the coupler assembly permit accurate adjustment for calibration of the output voltage at the particular frequency desired. The output is type "N" and at maximum, 2-3 watts. VSWR is 1.03:1 or less.

The coupling loop termination resistor is a high tolerance, fixed composition resistor, which is field replaceable.



### Single

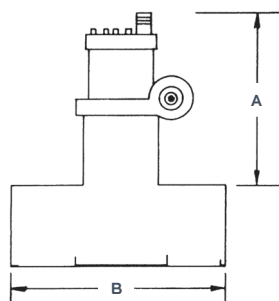
Supplied with Hose Clamps.

| Outer Diameter | Part Number | Dimensions |      | Weight  |
|----------------|-------------|------------|------|---------|
|                |             | A Max      | B    |         |
| 1 5/8"         | 4270-503    | 3.63"      | 4"   | 3.5 lbs |
| 3 1/8"         | 5500-501    | 5.13"      | 4.5" | 4 lbs   |
| 4 1/16"        | 5500-518    | 5.13"      | 4.5" | 4 lbs   |
| 6 1/8"         | 5500-502    | 5.13"      | 4.5" | 4 lbs   |
| 7 3/16"        | 5500-502    | 5.13"      | 4.5" | 4 lbs   |
| 8 3/16"        | 5500-517    | 5.13"      | 4.5" | 4 lbs   |
| 9 3/16"        | 5500-504    | 5.13"      | 4.5" | 4 lbs   |

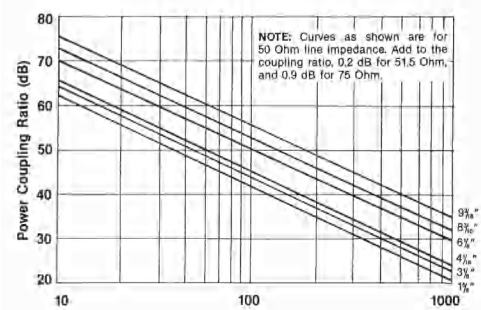
### Dual

Supplied with Hose Clamps.

|         |          |       |      |       |
|---------|----------|-------|------|-------|
| 3 1/8"  | 5500-525 | 5.13" | 4.5" | 4 lbs |
| 4 1/16" | 5500-526 | 5.13" | 4.5" | 4 lbs |
| 6 1/8"  | 5500-523 | 5.13" | 4.5" | 4 lbs |
| 7 3/16" | 5500-523 | 5.13" | 4.5" | 4 lbs |
| 8 3/16" | 5500-524 | 5.13" | 4.5" | 4 lbs |
| 9 3/16" | 5500-527 | 5.13" | 4.5" | 4 lbs |



**MOUNTING NOTE:** A HOLE IS MADE IN OUTER CONDUCTOR TO ACCOMMODATE THE COUPLER.



**FREQUENCY (MHz)**  
NOTE: MAXIMUM COUPLING RATIO IS APPROXIMATELY 50 dB GREATER THAN THE MINIMUM VALUES SHOWN.



- › **Enhanced local user interface**
- › **Transmission system monitor for VSWR, pressure, overpowering, and temperature**
- › **Forward and reverse remote power sensors measure power at directional couplers**

### **Scout-out elevated VSWR before it causes problems**

The Dielectric RF Scout Plus monitors RF transmission system VSWR and forward power to aid in detecting VSWR problems as they develop. In many cases, this will allow the transmitter operator to remedy transmission system contributors to elevated VSWR before they affect operations. The unit continuously monitors forward and reflected power, and displays the values. It can hold one month of half-hour data and up to 100 alarms. The system can also be configured to monitor transmission line pressure and temperature. User-settable options include warning and alarm levels, enable/disable interlock trip for each monitoring function, and a VSWR alarm strike-out number.

The RF Scout Plus offer a high degree of flexibility in monitoring and communications capabilities. The unit's status is available to local operators via a 4.3" touch panel, and to remote operators through an Ethernet interface with HTTP (web page).

The RF Scout monitoring system comprises a rack-mountable unit with two power sensors and their associated 25' cables, along with a dual directional coupler with factory pre-set coupling values consistent with the forward power level. The coupler sections are designed for the various line sizes available. The RF Scout Plus may also be supplied without the coupling section for systems that already have the appropriate couplers in place. Pressure transducers and thermocouples can be supplied separately.

The RF Scout Plus with PlusConnect provides a seamless link to Burk Technology ARC Plus remote monitoring and control systems, bringing RF Scout Plus-monitored and -controlled parameters aboard the ARC Plus. A single serial connection to the ARC Plus network reduces installation time and saves the expense of adding remote control capacity. If you already have an ARC Plus system controlling your transmitter, you don't have to rewire IP connectivity between the RF Scout Plus and the ARC Plus, eliminating the need to run new wires or cable from the RF Scout to the remote control. Just add the RF Scout with the PlusConnect to your ARC Plus network.

Communications are secure thanks to an encrypted digital signature sent with each packet.

## Specifications

|   |  |
|---|--|
| <b>Processor</b>                                      | Embedded PLC Controller  |
| <b>Display</b>  | 3", Back lit Touch Panel   |
| <b>Display Functions</b>                              | VSWR Value<br>Forward Power<br>Reflective Power<br>Line Pressure<br>Temperature<br>User Set-Up Menu for all options/parameters |
| <b>Senor Inputs</b>                                   | (2) 0 to 5 VDC for RF Power<br>(1) 0 to 5 VDC for Pressure<br>(1) Thermocouple   |
| <b>RF Sensors: Standard</b>                           | Dielectric P/N 97730, 50 to 800 MHz, True Average Power, 50 Ohm, Type N, 1.0 W Max   |
| <b>RF Sensors: Low Power</b>                          | Dielectric P/N 11000005351, 50 to 800 MHz, True Average Power, 50 Ohm, Type N, 100 mW Max                                      |
| <b>Transmitter Interlock</b>                          | SPDT, Dry contacts, Latching Relay<br>(250VAC, 2.5amps)  |
| <b>Remote Interface Functions<br/>Output (24 VDC)</b> | TX Interlock trip<br>VSWR Alarm<br>Forward Power Alarm<br>Pressure Alarm   |
| <b>Input (24 VDC)</b>                                 | Interlock Reset  |
| <b>Lan Port</b>                                       | 10/100 base T Ethernet, FTP Server, Web  |
| <b>Power</b>  | 100-240 VAC, 60/50 Hz  |
| <b>Dimensions (cm)</b>                                | 2 Rack Unit, 19"(48.2)W x 10"(25.4)D x 3.5"(8.9)H  |



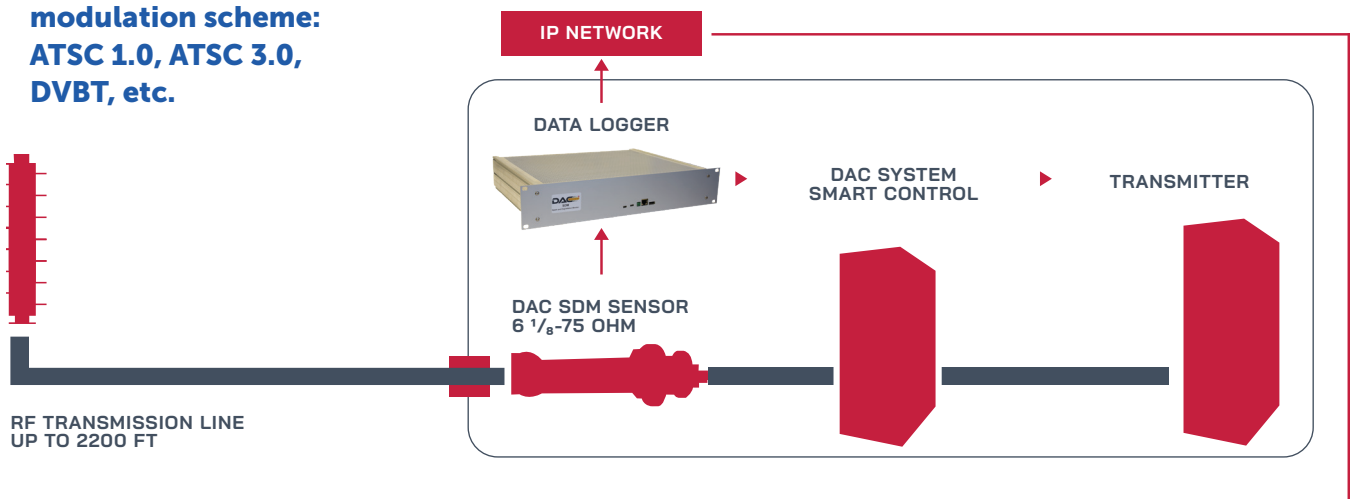
**RFHAWKEYE® is the RF Monitoring & Control System of the future...available today.**

RFHAWKEYE® is the first IP-connected system that delivers real-time data to effectively monitor your transmission line, the unsung workhorse of a broadcast system. Undetected degradation of this vital component can be devastating, leading to extensive damage and time off-air.

- › **Continuous remote real-time, time-domain system measurement and recording at full power**
- › **Detects, locates and warns of VSWR changes or arcing in the transmission line**
- › **Compatible with any modulation scheme: ATSC 1.0, ATSC 3.0, DVBT, etc.**

| Line Size*   | Max Length   | Min Power | Max Avg. Power (Kw) UHF US-Band |
|--------------|--------------|-----------|---------------------------------|
| 3 5/8" - 50  | 725m/2200 ft | 6 Kw      | 19-24                           |
| 4 1/16" - 50 |              |           | 30-39                           |
| 6 1/8" - 50  |              |           | 63-81                           |
| 6 1/8" - 75  |              |           | 53-70                           |
| 7 3/6" - 75  |              |           | 69-92                           |
| 8 3/16" - 75 |              |           | 96-117                          |

\*also available in EHT version.



DACS ANALYTICS SAAS



OPERATOR

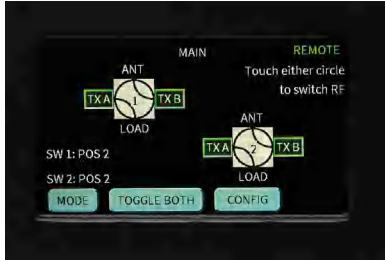


OPERATORS CAN USE THIS PROGRAM TO TRACK PERFORMANCE OF RF SIGNALS ANY TIME, ANYWHERE IN THE WORLD.



## Specifications

| Parameter   | Spec  |
|---|---|
| RF Connector CU   | 2 x N - Female / 50 ohm                                 |
| RF Connector CU   | 2 x N - Female / 50 ohm                                 |
| RF Connector PU   | Chanel 14, 470-700 MHz                                  |
| Frequency Range   | > 1 dB  |
| Detection of Return Loss                                      | < - 45 dB   |
| Smallest Detectable Reflection                                | +/-8 in   |
| Accuracy of Location of Return Loss/VSWR Variation or Arching | Passive Component                                       |
| Power Consumption CU  | 30 Watt   |
| Power Consumption PU  | 100-240 VAC, 60/50 Hz                                   |
| Material CU   | Rigid Line: Copper;<br>Flange: Brass                    |
| Dimension CU  | Length 15 in  |
| Dimension PU  | 19" sub-rack - 1HU / H: 43.8 mm x<br>W: 483 x D: 220 mm |
| Weight CU   | 7.7 - 15.4 lbs (varies with line size)                  |
| Weight PU   | 6 lbs   |
| Environmental Working Temperature                             | 32° F - 113° F / 0° C to +45° C                         |
| Safety PU   | EN60950-1   |
| LAN Interface   | RJ-45/Ethernet/IP Interface                             |
| Power Supply  | 2 x AC 90...264V, 47...63Hz-IEC                         |
| Out-of-Band Emission  | Compliant with FCC § 73.622 (h),<br>< -110 dBc          |
| Arc Detection   | 100% of arc or arc bursts<br>longer than 100 s          |
| Return Loss/VSWR CU   | > 35 dB / < 1.036:1.0                                   |
| Distance CU to PU   | 21 ft   |

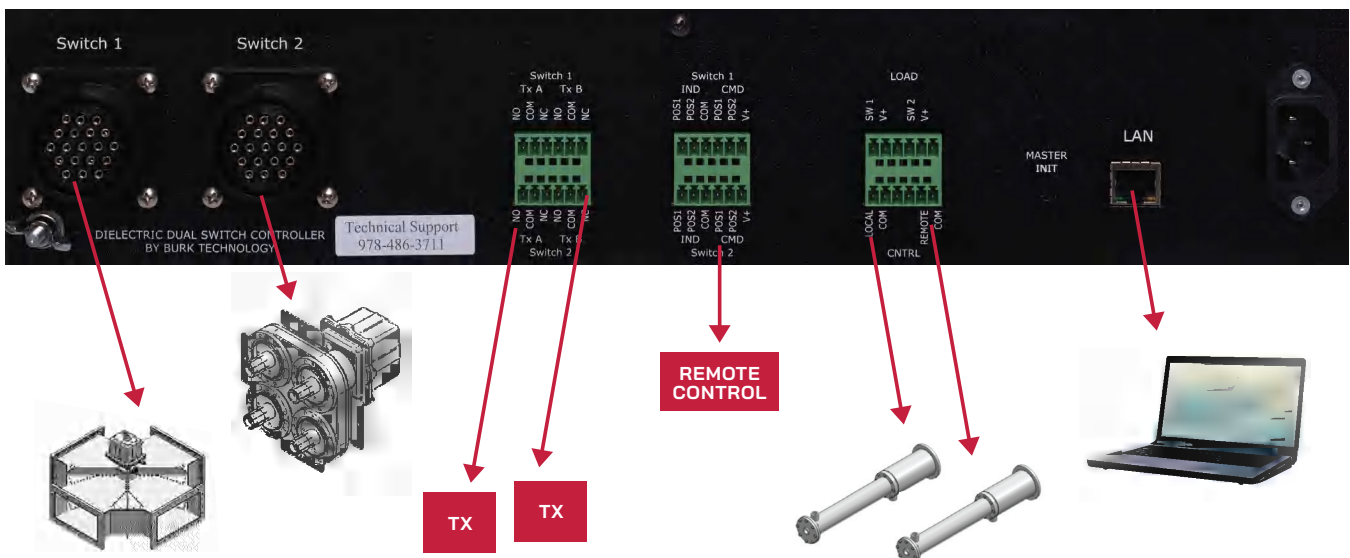


## Remotely switch 1-2 RF transmitters via the web!

- Control of one or two RF transfer switches (3- or 4-port; coaxial or waveguide).
- Local touch screen, discrete remote-control connections, integral web page or SNMP, in addition to a lockout mode for control of the switch.
- Status monitoring from the front panel color touch screen or any of the remote interfaces.
- User-defined switch port labels that are easily configured via the built-in web page.
- Selectable 12 or 24 VDC switch command voltages.
- Transmitter interlocks with user-defined delay between disengaging the interlocks and initiating a switch command.
- Load interlock input with user-defined association of interlock with specific switch port.
- Burk Plus-X protocol included to allow easy integration of the switch controller with Burk remote-control systems.
- Amphenol 19 pin circular connectors for fast interconnection to switches using standard Dielectric switch cables.

## Specifications

| Parameter                              | Spec  |
|--|---|
| Model                                  | DSC2  |
| Part Number                            | 400013927                                       |
| Dimensions                             | 5.25" (3RU) X 19" x 11" (133mm x 482mm x 279mm) |
| AC Power Requirements                  | 110-240 VAC/50-60 Hz                            |
| AC Power Consumption (Controller Only) | 40W   |
| Ambient Temperature, Operating         | 32°F (0°C) to 122°F (50°C)                      |
| Storage Temperature                    | -4°F (-20°C) to 158°F (70°C)                    |
| Storage/Operating Humidity             | 0-90% non-condensing                            |
| Weight                                 | 12 lbs (7 kg)                                   |

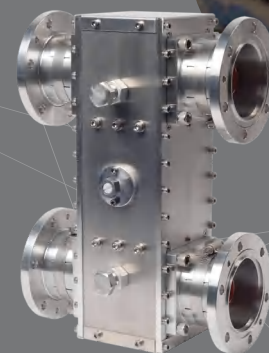
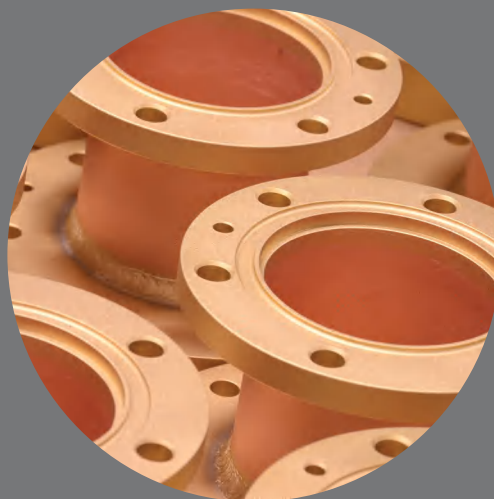


## TRUSTED FOR DECADES. READY FOR TOMORROW.

Dielectric has been a leading innovator throughout the history of broadcasting, with more than 100 patents in RF transmission technology since our founding in 1942. Today we are the world leader in the engineering, design and manufacturing of complete broadcast systems.

Most recently, Dielectric has led the transition to digital TV in the Americas.

Our engineers bring hundreds of years of combined experience, working on more than 10,000 antennas, to meet your customized needs for the future. Whatever new technologies emerge, there's a good chance they'll start here at Dielectric world headquarters in Maine, USA.



Dielectric products are represented in 90 countries around the world. With the rapid expansion of communications, Dielectric is positioned to service the broadcast needs of small & large stations, DTV, FM & specialty RF systems, complete systems and components.

# Dielectric®

Specifications subject to change without notice.

## NORTH AMERICA

- > BELIZE
- > CANADA
- > COSTA RICA
- > DOMINICAN REPUBLIC
- > EL SALVADOR
- > GREENLAND
- > GUATEMALA
- > MEXICO
- > NICARAGUA
- > PUERTO RICO
- > UNITED STATES

## SOUTH AMERICA

- > ARGENTINA
- > BRAZIL
- > CHILE
- > COLOMBIA
- > ECUADOR
- > PERU
- > VENEZUELA

## EUROPE

- > AUSTRIA
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- > DENMARK
- > ENGLAND
- > FINLAND
- > FRANCE
- > GERMANY
- > GREECE
- > ICELAND
- > IRELAND
- > ISRAEL
- > ITALY
- > MALTA
- > NETHERLANDS
- > NORWAY
- > POLAND
- > PORTUGAL
- > ROMANIA
- > RUSSIA
- > SPAIN
- > SWEDEN
- > SWITZERLAND

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- > INDIA
- > INDONESIA
- > JAPAN
- > JORDAN
- > KOREA
- > KUWAIT
- > LEBANON
- > MALAYSIA
- > MONGOLIA
- > NEPAL
- > OMAN
- > PAKISTAN
- > PHILIPPINES
- > QATAR
- > SAIPAN
- > SAUDI ARABIA
- > SINGAPORE
- > SRI LANKA
- > SYRIA
- > TAIWAN
- > THAILAND
- > VIETNAM
- > YEMEN

## AFRICA

- ANGOLA
- BENIN
- BOTSWANA
- CHAD
- EGYPT
- ETHIOPIA
- GHANA
- LIBERIA
- MADAGASCAR
- MALI
- MAURITANIA
- MAURITIUS
- MOROCCO
- NIGERIA
- SAO TOME
- SOUTH AFRICA
- TOGO
- UGANDA
- ZAMBIA
- ZIMBABWE

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- > AUSTRALIA
- > NEW ZEALAND
- > PAPUA NEW GUINEA